

**A STUDY OF PROGNOSTIC FACTORS  
IN CARCINOMA BREAST AT  
THANJAVUR MEDICAL COLLEGE  
HOSPITAL**

**DISSERTATION SUBMITTED FOR  
M.S.DEGREE EXAMINATION**

**BRANCH I  
(GENERAL SURGERY)**

**THANJAVUR MEDICAL COLLEGE  
THANJAVUR**



**THE TAMILNADU DR.M.G.R.MEDICAL UNIVERSITY  
CHENNAI**

**MARCH - 2008**

## **CERTIFICATE**

This is to certify that dissertation entitled '**A STUDY OF PROGNOSTIC FACTORS IN CARCINOMA BREAST**' in TMCH is the bonafide record of work done by Dr.L.PREMALATHA in The Department of General Surgery. Thanjavur Medical College Thanjavur during her postgraduate course from 2005-2008. This is submitted as partial fulfillment for the requirement of M.S Degree Examinations branch I (General Surgery) March 2008

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## **ACKNOWLEDGEMENT**

I express my deep sincere gratitude to professor **Dr. G. AMBUJAM M.S. FICS** Head of Department of Surgery and my unit chief for her invaluable guidance without whose help this study would not have been a reality. I am thankful to her advice and guidance in designing and enabling me to do this study with creative suggestions and constructive criticisms.

I express my sincere thanks to **Professor DR.G. VENGATESAN.M.S., Prof. DR. MARUTHAVANAN.M.S., Prof. DR. MOHAMMED ISMAIL.M.S Professor Dr.T. ANANTHARAMAKRISHNAN M.S. FICS**, for their help and encouragement.

I am very much grateful to **Dr. S. MARUTHUDURAI M.S., Dr. LATHA M.S., Dr. N. RAMESH M.S.** for their valuable suggestions and guidance throughout the study.

I profoundly thank THE DEAN, Thanjavur Medical College for permitting me to use the hospital facilities for my study. My sincere thanks to the professor, assistant professors and post Graduates of pathology department and Radiotherapy department for their kind cooperation and assistance.

I express my sincere thanks to all patients who inspite of their physical and mental suffering have cooperated and obliged to my request for regular followup.

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## **INTRODUCTION**

Carcinoma breast is the leading cause of death in middle aged women in western countries. It is the second most common cancer in females in India. However in Metropolitan city like Bombay, the incidence of breast cancer has overtaken that of cervical cancer. Information form National Cancer Registry show that age adjusted incidence rate was 39.5 per 100,000 females in chandigarh for the year 2002 which tops the list. In chennai incidence is about 23.5 per 100,000 females. Crude incidence rate is 13 per 100,000 females per year. The annual mortality rate for breast cancer has been reported to be 4.4 per 100,000 in Bombay.

The number of new cases and number of women dying each year of breast cancer is approximately half of that reported from U.S.A. but population of India is four times that of U.S.A therefore the breast cancer problem in India is  $1/8^{\text{th}}$  of that of U.S.A.

## **AIM OF THE STUDY**

1. To study the incidence of carcinoma breast in relation with age and socioeconomic status of patients.
2. To study the relationship of carcinoma breast with menstrual status and menstrual history.
3. To study the relationship of carcinoma breast and use of hormonal pills.
4. To study the TNM stage at which the patients report to hospital and its relation to prognosis.
5. Relationship of Tumor size to prognosis
6. To study the relationship between the number of lymph nodes in the axilla in relation to prognosis.
7. Significance of histologic tumour type in relation to prognosis.
8. Relationship of histologic grade of tumour and prognosis.
9. Relationship of positive resection margins and prognosis.
10. To suggest the prognostic factors that can be assessed and routinely followed up in carcinoma breast.

## **REVIEW OF LITERATURE**

### **AGE**

The incidence of cancer breast increases with increasing age uncommon before the age of 20. Cases in woman younger than 30 constitute less than 2% while the incidence is about 300 cases per 100,000 in eighth decade of life. The cumulative risk of developing breast cancer between the ages of 20 and 40 is 0.5% whereas between 50 and 70 is 5 percent. This accounts for the fact that majority of patients presenting with breast cancer are over the age of 50 years.

### **SEX**

Male breast cancer constitute less than 1% of the total incidence with female to male ratio 1 : 0.01.

### **SOCIO ECONOMIC STATUS**

According to world statistics, cancer breast was more common in women with higher socio economic status.

### **DIETARY FACTORS**

Weight correlate with breast cancer risk although causal relationship between dietary fat or cholesterol intake has not been demonstrated. Evidence for association between alcohol consumption and increased likelihood of developing breast cancer is becoming stronger. Relative risk for one unit of alcohol per day is 1.1 and increases to 1.3 to 1.5 if intake increases to two glasses a day.

## **IONIZING RADIATION**

An increased risk of breast cancer is noted in woman treated with radiation for Hodgkin's disease, postpartum mastitis. The increased risk becomes apparent after a latent period of 10-15 years that effect is most obvious if irradiation occurs under the age of 35.

## **HORMONAL INFLUENCES:**

Recent studies have confirmed association between excess urinary estrogens, frequency of ovulation, age at menarche and increased risk of breast cancer. Intrauterine exposure to high concentration of estrogen even increase breast cancer risk. Normal breast epithelium possess estrogen and progesterone receptors. A variety of growth promoters (TGF , &, EGF, PDGF, FGF) and growth inhibitors (TGF – B) are secreted by human breast cancer cells. Many studies suggest that they are involved in an autocrine mechanism of tumor progression. Production of these growth factors is dependant on oestrogen interaction between circulating hormones, hormone receptors on cancer cells and autocrine growth factors induced by hormone are involved in breast cancer progression.

Hormonal factors that increase the risk of breast cancer include conditions that allow high levels of estrogen to persist for long period of time such as age at first menstruation, late age at menopause, parity and age at first birth.



**MENSTRUAL STATUS:**

There appears to be 20% decrease in breast cancer risk for each year that menarche is delayed. The relative risk of developing breast cancer for a woman with natural menopause before age 45 is half that of a woman whose menopause occurs after 55.

**PARITY**

Nulliparous woman have a relative risk of about 1.4. Anovulatory cycles increase risk due to increased exposure to endogenous estrogen in the absence of progesterone.

**AGE AT FIRST PREGNANCY**

The effect of term pregnancy on breast cancer risk varies with age at first birth, women whose fullterm pregnancy occurs after age 30 have a two to five fold increase in breast cancer risk compared with women having a first full term pregnancy before age 18. Breast tissue may undergo differentiation as a result of hormonal changes of a full term pregnancy and these differentiated cells are less likely to undergo malignant transformation or persisting changes in hormone after the proliferative rate of breast epithelium

**LACTATION:**

A reduction in risk of cancer have been documented but no such effect was detected in postmenopausal females.

**OOPHERECTOMY**

Oophorectomy below 40 years is protective.

## **ORAL CONTRACEPTIVES AND CANCER RISK**

A 1996 analysis of worldwide epidemiologic data found that women who were recent users of birth control pills had a slightly elevated risk of developing breast cancer, however. 10 years or more after stopping using OC'S their risk returned to same level as if they had never used oral contraceptives.

## **HORMONE REPLACEMENT THERAPY AND CANCER RISK**

Two recently published studies compared the risk of breast cancer for who had taken estrogen combined with progestin HRT with estrogen only HRT. The study focused on nearly 1900 postmenopausal women diagnosed with breast cancer and more than 1600 controls matched for age, race. The researches found that for combined HRT, the risk of developing breast cancer increased by 24% for every 5 years of use. For estrogen only HRT, the risk increased by 6% for every 5 years of use.

In addition data from postmenopausal Estrogen / Progesterone Interaction trial indicate that about 25% of women who use combination HRT and 8% of women with estrogen only HRT have an increase in breast density in mammogram. Increased density in mammogram of at least 75% in women of 45 years or more, is an increased risk for breast cancer.

## **USE OF DES AND BREAST CANCER**

Current research indicates that the risk of breast cancer in DES exposed mothers is approximately 30% higher than the risk in women who have not been exposed to DES. This risk stabilizes over time.

## **ABORTION AND BREAST CANCER**

A large scale Epidemiological study reported in New England journal of Medicine in 1997, determined that the risk of developing breast cancer for women with a history of induced / spontaneous abortion was not different from the risk for women without such a history.

## **PREVIOUS HISTORY OF BREAST CANCER**

A history of cancer breast in one side increases the likelihood of a second primary cancer in contralateral breast. In many studies the relative risk range between 3 and 4. The magnitude of relative risk depend on age at diagnosis of first primary breast cancer. For patients younger than 45 risk for contralateral breast is five to six times that of general population. In absolute terms the actual risk varies between 1% per year in young patients to 0.2% in older patients.

## **HISTORY OF BENIGN BREAST DISORDER**

Patients with history of proliferative disease or atypical ductal or lobular hyperplasia have increased risk of developing cancer breast. Relative risk of invasive cancer breast based on American college of pathologists consensus statement is as follows.

**NO INCREASED RISK:**

- Adenosis, Hyperplasia, Apocrine metaplasia,
- Cysts (micro, macro), Duct ectasia, periductal mastitis
- Fibro adenoma, Squamous metaplasia

**SLIGHTLY INCREASED RISK (1.5 – 2 TIMES)**

- hyperplasia (moderate or florid solid or papillary)
- Papilloma with fibrovascular core

**MODERATELY INCREASED RISK**

- Atypical hyperplasia

The cumulative risk of developing cancer breast in patients with atypical hyperplasia was 10% at 55months. A marked interaction between atypia and a family history of a first degree relative with breast cancer was found by Dupont and Page. The absolute risk of breast cancer development in women with positive family history and atypical hyperplasia was 20% at 15 years.

## **FAMILIAL BREAST CANCER:**

It is estimated that approximately 5-10% of all patients with breast cancer may have a germ line mutation of genes BRCA1 and BRCA2. Specific mutations of BRCA1 and BRCA2 are more common in women of Jewish ancestry. The estimated lifetime risk of developing breast cancer in women with BRCA1 and BRCA2 mutations is 40-85%. Carriers with history of breast cancer have an increased risk of contralateral disease that may be as high as 5 % per year. Male carriers of BRCA2 mutations are also at increased risk of breast cancer. Mutations of either gene also confer an increased risk of ovarian cancer. In addition, mutation carriers may be at increased risk of other primary cancers. High penetrance genes are the susceptibility genes located in

Long arm of chromosome 17 -> BRCA1

Long arm of chromosome 13 -> BRCA2

Most of cases of cancer breast in families are due to expression of random occurrence rather than due to genetic defect

So prophylactic mastectomy is limited to cases of

1. Young patients whose first degree relative had bilateral premenopausal breast cancer.
2. Families with an established genetic defect.
3. Families with many members affected with a consistent pedigree.

Syndromes associated with multiple cancers which can run in families include

Lynch type II	—	cancer breast and ovary
Lifraumeni Syndrome	—	soft tissue sarcomas, brain tumor, leukaemia, melanoma and cancer breast.

## **RISK FACTOR FOR BREAST CANCER**

**MAJOR:** Gender, Age, Family History, Personal History of contra lateral cancer breast, Benign proliferative changes with atypia, Non invasive carcinoma

**MINOR:** Early menarche, obesity , Late menopause, Low dose radiation

## **CONTROVERSIAL RISK FACTORS**

- Alcohol intake, Smoking, OCP / HRT, Abortion, Diet

## **PATHOLOGY**

Pathological classification of carcinoma Breast (WHO)

### **(I) EPITHELIAL TUMOURS**

#### **1. Non-invasive**

- Intraductal ca (DCIS)
- Lobular carcinoma in situ (LCIS)

#### **2. Invasive.**

- a) Invasive ductal carcinoma (not otherwise specified)
- b) Invasive ductal carcinoma (predominant DCIS)
- c) Mucinous
- d) Medullary
- e) Papillary
- f) Lobular

- g) Adenoid cystic
- h) Secretory
- i) Apocrine
- j) Carcinoma with metaplasia
  - (i) Squamous
  - (ii) Spindle cell
  - (iii) Cartilaginous and osseous
  - (iv) Mixed
- k) Others

### **LOBULAR**

- a) Invasive Lobular carcinoma
  - b) Combined Ductal and Lobular.\
3. Paget's disease of Nipple.

### **(II) MIXED CONNECTIVE TISSUE & EPITHELIAL TUMOURS**

- Fibroadenoma, carcinosarcoma, phylloides

### **(III) MISCELLANEOUS TUMOURS**

- Soft tissue tumours, Skin Tumours, Tumours of Hematopoietic, lymphoid tissues

### **(IV) UNCLASSIFIED**

### **(V) MAMMARY DYSPLASIAS**

### **(VI) TUMOUR LIKE LESIONS**

- Duct ectasia, Inflammatory pseudotumours, Hamartomas
- Gynaecomastia, Others.

## **DISTRIBUTION OF HISTOLOGICAL TYPES OF BREAST CANCER**

- |    |                    |   |          |
|----|--------------------|---|----------|
| 1. | Insitu Carcinoma   | - | 15 – 30% |
|    | DCIS               | - | 80%      |
|    | LCIS               | - | 20%      |
|    |                    |   |          |
| 2. | Invasive Carcinoma | - | 70 – 85% |
|    | Ductal ca (Nos)    | - | 79%      |
|    | Lobular ca         | - | 10%      |
|    | Colloid            | - | 2%       |
|    | Medullary          | - | 2%       |
|    | Papillary          | - | 1%       |

## **STAGING OF CANCER BREAST**

The American joint committee on cancer (AJCC) 1997 staging system provides a strategy for grouping patients with respect to prognosis AJCC has designated staging by TNM classification.

### **PRIMARY TUMOUR (T)**

- |     |   |   |
|-----|---|---|
| Tx  | - | primary tumour cannot be assessed.  |
| To  | - | No evidence of primary tumour.  |
| Tis | - | Tumour in situ [DCIS, LCIS] or paget's disease of nipple with no associated tumour. |



T1	-	2cm or less in greatest dimension.
T1 mic-		Microinvasion 0.1 cm or less
T1a	-	0.1 – 0.5 cm
T1b	-	0.5 – 1 cm.
T1c	-	1 – 2 cm.
T2	-	2 – 5 cm in greatest dimension
T3	-	> 5cm in greatest dimension.
T4	-	Tumour of any size with direct extension to chest wall, skin.
T4a	-	Extension to chest wall (ribs, intercostal muscles, serratus anterior)
T4b	-	edema, peude orange / ulceration / satellite nodules.
T4c	-	both a & b
T4d	-	inflammatory carcinoma

## **REGIONAL LYMPH NODES (N).**

Nx	-	regional lymph nodes cannot be assessed
N0	-	No regional lymph node metastasis
N1	-	Metastasis to mobile ipsilaterral axillary nodes
N2	-	Metastasis to ipsilateral axillary node (s ) fixed to each other or to other structures
N3	-	Metastasis to ipsilateral internal mammary nodes.

## **PATHOLOGIC CLASSIFICATION (PN)**

- Pnx - regional nodes cannot be assessed
- Pno - no regional lymph node metastasis
- Pn1 - metastasis to mobile ipsilateral axillary nodes
- Pn1a - only micro metastasis (none > 0.2 cm)
- Pn1b - metastasis to node > .2 cm
- Pn1bi - metastasis to 1 – 3 lymph nodes (0.2 – 2 cm)
- Pn1bii - metastasis to 4 or more nodes (0.2 – 2 cm)
- Pn1biii- extension of tumour beyond the capsule of a lymph node  
metastasis less than 2 cm in greatest dimension
- Pn1biv- metastasis to node > 2cm
- Pn2 - metastasis to ipsilateral axillary nodes fixed to each other
- Pn3 - metastasis to ipsilateral internal mammary nodes.

## DISTANT METASTASIS

- Mx - presence of distant metastasis cannot be assessed
- Mo - No distant metastasis
- M1 - Distant metastasis present (including ipsilateral supra  
clavicular nodes)

Stage	Grouping		
0	T1s	No	Mo
1	T1	No	Mo
IIA	T0	N1	Mo
	T1	N1	Mo
	T2	N0	Mo
IIB	T2	N1	Mo
	T3	N0	Mo
IIIA	To	N2	Mo
	T1	N2	Mo
	T2	N2	Mo
	T3	N1	Mo
	T3	N1	Mo
IIIB	T4	Any N	Mo
	Any T	N3	Mo
IV	Any T	Any N	M1

## MANCHESTER CLASSIFICATION

- Stage I        -        Tumour confined to breast, skin involvement less than size of tumour.
- Stage II       -        Tumour confined to breast, with mobile palpable axillary nodes
- Stage III      -        Tumour extends beyond breast tissue, skin involvement more than size of tumour, fixed to underlying fascia, pectoral muscle
- Stage IV      -        Growth fixed to chest wall, satellite nodules, fixed axillary nodes, supraclavicular nodes, distant metastasis

## SPREAD OF BREAST CANCER

Carcinoma breast spread by following means

### 1. Local spread within the breast

- By        -        direct infiltration along ducts
- direct infiltration into breast parenchyma
- Breast lymphatics

Invades skin, pectoral muscles, chest wall

### 2. Regional spread

Occurs to axillary and internal mammary nodes.

Involvement of lymphnodes is an independent prognostic indicator

- No histological positive nodes        -        80% 5 year survival
- 1-3 histological positive nodes        -        50% 5 year survival
- >4 histological positive nodes        -        21% 5 year survival

## LEVEL OF INVOLVEMENT

- Level I        -        Lymphnodes lateral to border of pectoralis minor 65% 5 year survival rate
- Level II       -        Nodes deep to insertion of pectoralis minor 31% 5 year survival
- Level III      -        Nodes medial to pectoralis minor muscle.

Lymph passing through either axillary or internal mammary nodes reaches the jugulosubclavian venous confluence. If this is obstructed, lymph passes in retrograde way to supraclavicular nodes.

Lymph channels also cross the diaphragm where they communicate with lymphatics of the liver.

### 3. Spread by blood stream

Metastasis occurs to bones, liver, lung, brain, adrenals, ovaries. The intercostal veins in addition to draining into azygos, communicate with vertebral veins, thus explaining predilection to axial skeleton. The skeletal metastasis are usually osteolytic. Their order of frequency is to lumbar vertebra, femur, thoracic vertebra, rib, skull.

# INVESTIGATIONS

## OBJECTIVE

1. To confirm diagnosis
2. To know extent of disease
3. To use the information in predicting response to certain type of treatment.

### A. TO CONFIRM THE DIAGNOSIS : FNAC / BIOPSY

- FNAC            -        To be done in all palpable, suspicious masses
- Therapeutic in cysts.

Sensitivity of breast FNAC performed on palpable masses is reported to be 90 percent. The specificity and predictive value of breast FNAC approaches 100 percent because false positive results are rare.

- Biopsy            -        Core needle biopsy
- Excisional biopsy

Can be used for histological grading and ER / PR assay

## NONPALPABLE MAMMOGRAM ABNORMALITY

1. Needle localized core biopsy under mammographic guidance.
2. Needle core biopsy directed into lesion under stereo tactic control
3. USG guided percutaneous biopsy can be done.

Image directed needle localization done under local anesthesia. Wire and hook passed and positioned in area of calcification density or suspicious area. Specimen excised with the wire and radiograph taken to confirm calcifications present in biopsy specimen.

## **IMAGING STUDIES**

- \* Mammography

Bilateral study is necessary for screening, diagnosis, follow up.

Malignant breast lesions have following characteristics.

- \* Irregular Speculated Mass
- \* Clustered Calcification
- \* Calcification < 0.5mm in diameter
- \* Architectural distortion
- \* Focal asymmetric density.

## **BENIGN BREAST LESIONS**

- \* Solid or lucent centered spheres
- \* Smooth, round calcifications
- \* Calcifications > 1mm

## **B TO KNOW ANATOMICAL EXTENT OF THE DISEASE**

1. X RAY CHEST

To rule out pulmonary metastasis

2. USG ABDOMEN

To rule out liver metastasis, free fluid retroperitoneal lymphadenopathy

3. BONE SCAN

In stage I and II incidence of skeletal metastasis is 2-6%

In stage III it is 14%

Bone scan has a lead of 6-18 months over radiograph in demonstrating metastasis.

Most bony metastasis appear 20 months to 4 years after mastectomy

Bone scan indicated in higher stage of disease, in patients who have bone pains, raised level of serum alkaline phosphatase, positive skeletal radiogram, palpable regional or metastatic disease.

#### 4. CAT and MRI

They aid in evaluating axilla, mediastinum, supraclavicular area for adenopathy.

MRI helps to evaluate patients after prosthetic implants. To diagnose recurrence after surgery. It is often difficult to predict whether it is local recurrence or fibrosis or scarring. In MRI the scar tissue will not be enhanced with contrast media whereas the tumour (recurrence) is seen as enhanced area.

### **C. TO USE INFORMATION IN PREDICTING RESPONSE TO CERTAIN TYPES OF TREATMENT**

A strong correlation exist between presence of ER and PR receptors and response to endocrine therapy, all tissues should be analyzed for receptors whenever adequate volumes are available more than 60 percent of ER positive tumours will respond to adjunctive endocrine therapy.

Two types of assays are used to quantitate ERS and PRS

- I. For ligand binding methods (eg. Dextran coated charcoal assay) results are expressed in femtomoles of receptor protein per milligram of cytosol protein (Fm01 / mg) cut offs vary form 3 – 20 Fmol / mg. Specimens should be large and must be immediately fixed in liquid nitrogen results of this method may be affected by presence of estrogen / tamoxifen in the specimen.



- II. With regard to monoclonal antibody – based methods (eg. immunohistochemistry IHC, enzyme immuno assay) IHC has 2 advantages. First, it can be performed on any type or size of specimen, including cell blocks from body fluids or those fixed or embedded in paraffin section, it measures total protein, therefore it is not affected by presence of estrogen / tamoxifen.

## **HER2 / NEU. STATUS**

- A. IHC methods are used to assess HER2 / neu status. This method is a semi quantitative assay using monoclonal antibody.
- B. Scoring of HER2 / neu over expression using DAKO Hercep test.
- Strong complete membrane staining in more than 10% of tumour cells – strongly positive –score of 3+.
  - Weak to moderate complete membrane staining in more than 10% of cells – weakly positive –score of 2+.
  - Faintly perceptible membrane staining in more than 10% of tumour cells – interpreted as negative – score of 1+.
  - No staining or staining in 10% of tumour cells – Negative score of 0.
  - Detection of gene amplification with fluorescence in situ hybridization (FISH) is highly specific and has 82% overall concordance rate with IHC.

HER2 / neu over expression is associated with poor prognosis

Taxanes seem to have high efficacy in patients overexpressing HER2 (relative risk 65%) Compared with HER2 / negative group (35%)

## **MANAGEMENT**

In the management of carcinoma breast, cure should take precedence over cosmesis without disregarding it. Management falls into 2 main categories.

- Loco regional control
- Systemic

### **I. SURGICAL MANAGEMENT**

A century ago William Hallstead published his first report on radical mastectomy for control of breast cancer. At that time this was considered as appropriate solution to the problem. Later review showed that long term rates were not changed despite dramatic reduction in local recurrence rate.

Fisher stated that venous lymphatic communication exist and that particles injected into lymphatic drainage of breast rapidly appeared in venous circulation. Hence the disease was considered to be systemic long before clinical diagnosis was made. Fisher hypothesis indicated that variation in local and regional treatment were unlikely to influence long term cure. A systemic therapy would be necessary from the beginning which led to clinical trials of adjuvant systemic therapy

Different surgical procedures available are

### **1) RADICAL MASTECTOMY**

Here the breast, pectoralis major, regional lymphnodes along axilla upto costoclavicular ligament are resected.

### **2) EXTENDED RADICAL MASTECTOMY**

Here in addition to the above, internal mammary nodes are also removed.

### **3) MODIFIED RADICAL MASTECTOMY**

Pectoralis major is left intact

#### **(i) Patey's Modification**

Pectoralis minor is removed and level I, II, III Lymph nodes are removed.

#### **(ii) Scalop's Modification**

Pectoralis minor divided level I, II, III Lymph nodes are removed.

#### **(iii) Auchincloss Modification**

Pectoralis Minor is left intact level I / II nodes are only removed.

### **4) BREAST CONSERVING SURGERIES**

#### **(i) Wide local excision (lympectomy, tylectomy, segmental or partial mastectomy)**

Lump with 1 cm margin of grossly normal breast tissue is removed

#### **(ii) Quadrantectomy**

Quadrant of breast with lesion is removed.

## **5) SKIN SPARING MASTECTOMY**

Skin envelope is preserved while removing nipple areola complex, all underlying breast & axillary contents followed by immediate reconstruction with TRAM Flap or Expandable implants with small graft at areola site.

## **6) SIMPLE OR TOTAL MASTECTOMY**

Breast, Axillary tail of Spence and lymphnodes along it (low anterior group) are removed.

## **AXILLARY DISSECTION**

The axillary lymphnodes should be staged to aid in determining prognosis and therapy. Data suggest that the level of lymphnode involved does not add independent prognostic information to the total number of positive axillary nodes. Therefore only level I and II dissection therapy removing a satisfactory no: of nodes for evaluation while reducing morbidity from the procedure can be adopted.

In 918 patients with T1 lesions reported by silver stain et al incidence of axillary metastasis was 23%.

Factors identified as predictors of axillary lymph node metastasis were tumour size, grade, tumor palpability.

Steele et al reported sampling 3 or 4 ALNS provides accurate assessment of axilla with false negative rate of 10%

3 methods used are:

- 1) Axillary lymph node dissection
- 2) Axillary node sampling.
- 3) Sentinel lymph node biopsy

Sentinel node is defined as the first node of lymphatic basin that receives primary lymphatic flow. Identification of SLN done by injection of technetium labeled sulfur colloid, vital blue dye or both in 92-98% of patients. The reports demonstrate 97.5 to 100% concordance between sentinel lymph node biopsy and complete axillary lymph node dissection.

## **BREAST RECONSTRUCTION**

It has become an integral part of management of breast cancer.

It may either be done immediately following surgery or after 6 months.

Various techniques available are

- 1) Implants or expanders.
- 2) Autologous tissue
  - (i) pedicled flap
  - (ii) free flap.
- 3) Combination of both.

## **SUB PECTORAL IMPLANTS**

Involves placement of a tissue expander subpectorally and creating the breast mound by repeated expansion introducing saline and later placement by a permanent implant. Modern breast implants are manufactured with an outer shell of polydimethyl siloxane (silicone) and contains a filler material such as silicone gel to give its volume.

## **DISADVANTAGE**

1) Leakage of silicone gel into surrounding tissue 2) Capsule Contracture.

## **AUTOLOGOUS FLAPS**

They are more complex, expensive procedures requiring comprehensive training and experience.

## **TRAM FLAP**

Based on a transversely sited lower abdominal island of skin and fat supplied by perforators from superior and inferior epigastric vessels. It results in a soft natural and ptotic breast and avoids the need for additional prosthetic volume replacement.

## **DISADVANTAGE:**

Flap loss, abdominal herniation and abdominal weakness. Free flap circulation is by performing micro vascular anastomosis between inferior epigastric and thoraco dorsal or internal mammary vessels.

Lattismus dorsi flaps can be used to reconstruct irradiated tissues.

## **II. RADIOTHERAPY**

It is now proved that radiation therapy not only improves local control of breast cancer but along with surgery and chemotherapy improves the probability of survival.

A number of studies have examined the value of adding postoperative RT to adjuvant chemotherapy and important ones are.

- 1) British Columbia trial
- 2) Denmark trial.

In both trials, RT resulted in large reduction in local recurrence. The 7 years survival rate for premenopausal patients was 62% with RT compared with 55% without RT.

Two main types of techniques

- a) Whole breast irradiation

Done following breast conservation surgery.

- b) Loco regional RT technique

Breast or chest wall, ipsilateral axilla, supra and infra clavicular lymph nodes region, internal mammary chain of nodes are irradiated.

## **INDICATIONS FOR CHEST WALL IRRADIATION**

- 1) Positive margin or gross residual disease.
- 2) T3 tumour, especially with positive node.
- 3) T4 tumour
- 4) Four or more positive axillary lymph nodes.
- 5) Close surgical margin ( $< 2\text{cm}$ )
- 6) Following breast conservation therapy.

## **INDICATIONS FOR AXILLARY IRRADIATION**

- 1) 4 or more axillary lymph nodes positive.
- 2) Extra nodal disease.
- 3) Inadequate axillary sampling.
- 4) More than 50% of lymph nodes positive.

## **OPTIMAL RADIATION THERAPY TECHNIQUE AND DOSES.**

Following excision of primary tumour and lymph node dissection, radiation is delivered to entire breast for a total of 4500 to 5000 CGY over 4.5 to 5.5 weeks 100 – 200 CGY / day followed by supplemental boost of 1000 to 1600 CGY.

## **SIDE EFFECTS**

- Fatigue, Skin erythema, Dry and moist desquamation, Arm Edema
- Shoulder discomfort
- Progressive Parasthesia / weakness of arm, hands
- Radiation pneumonitis
- Radiation induced soft tissue sarcoma, osteosarcoma angiosarcoma.
- Bronchogenic carcinoma in ipsilateral lung in smokers.

## **III. CHEMOTHERAPY**

Chemotherapy is given to all premenopausal women with positive nodes. Chemotherapy has been shown to prolong disease free and overall survival in premenopausal patients with stage II breast cancer, both in randomized clinical trials and in population based studies.

It is started once surgical wound is healed.

## **INDICATIONS**

- 1) Premenopausal patients with positive nodes.
- 2) Patients with hormone receptor – negative tumors
- 3) Patients with visceral metastasis



## Commonly used Chemotherapeutic agents in breast cancer

Regimen	Dose / schedule	Interval days	Cycles
CMF (standard) Cyclophosphamide Methotrexate 5-fluorouracil	100mg / m <sup>2</sup> /d po for 14 day 40mg / m <sup>2</sup> / d IV days 1 and 8 600mg / m <sup>2</sup> /d IV days 1 and 8	28	6
CMF (IV, node negative patients) Cyclophosphamide methotrexate 5-fluorouracil	600mg / m <sup>2</sup> IV 40mg / m <sup>2</sup> IV 600mg / m <sup>2</sup> IV	21	12
CAF Cyclophosphamide Adriamycin 5- fluorouracil	100mg / m <sup>2</sup> /d Po for 14 days 30mg / m <sup>2</sup> /d IV 1 and 8 500mg / m <sup>2</sup> /d IV 1 and 8	28	6
CAF Cyclophosphamide Doxorubicin 5- fluorouracil	600mg / m <sup>2</sup> IV day 60mg / m <sup>2</sup> IV day 600mg / m <sup>2</sup> / d IV day	21-28	4-6

**SIDE EFFECTS**

Alopecia, Bone Marrow suppression, Immuno suppression, Nausea / vomiting, Cardio toxicity

**ADJUVANT HORMONE THERAPY****TAMOXIFEN**

Tamoxifen a selective ER modulator that inhibits the action of estrogen at estrogen receptor, has been preferred adjuvant agent in breast cancer prevention for more than 20 years. The drug has been shown to produce 47% reduction in risk of relapse after 5 years of treatment and 36% reduction in proportional risk of death at 10yrs. Tamoxifen is given to post menopausal women with positive hormone receptor assay. It is given in the dose of 20mg daily for 5 years.

## SIDE EFFECTS

Flushing, Vaginal dryness, Weight gain, Endometrial cancer, Thromboembolism

## GUIDELINES FOR CHEMO / HARMONAL THERAPY

Node Positive	Premenopausal	Postmenopausal
ER / PR + ve	Combination chemo therapy + Tamoxifen	Tamoxifen ± CCT
ER / PR - ve	CCT	CCT ± Tamoxifen
Node Negative		
Favorable tumour character	Tamoxifen	Tamoxifen
unfavorable	CCT	Tamoxifen

Favorable : Size < 2cm. ER / PR + ve, histological grade I,II.

Unfavorable : Size > 2cm. ER / PR – ve, histological grade III.

## AROMATASE INHIBITORS

The third generation aromatase inhibitors anastrozole letrozole, exemestane are superior to tamoxifen in postmenopausal women with metastasis ER breast cancers. MA17 trial demonstrated reduction in risk of recurrent breast cancer, reduction in development of contra lateral breast cancer improvement in overall survival in women with positive nodes and have received aromatase inhibitors.

DRUG / DOSAGE	ADVERSE EFFECT
Anastrozole 1 mg / d	Hot flushes, fatigue, vaginal dryness nausea, diarrhoea headache, osteoporosis, rarely DVT, MI Stroke.
Exemestane 2.5 mg / day	Hot flushes, nausea, fatigue Sweating, decreased Bone mineral density, lymphocytopenia
Letrozole 2.5 mg / day	Hot flushes, arthralgia, myalgia, fatigue dizziness osteoporosis decreased bone mineral density rarely M.I, stroke.

## TRASTUZUMAB

Approximately 25% of patients with carcinoma breast have tumours that overexpress her2 / neu.

Trastuzumab is a monoclonal antibody that binds to HER2 / neu receptor. Added to chemotherapy this drug has reduced the risk of recurrence by 50% and prolonged survival by 20% in a 3 years study.

## **PROGNOSTIC FACTORS IN BREAST CANCER**

### **A. COMMONLY ASSESSED**

1. Number of involved lymphnodes in axilla
2. Tumour size
3. Tumour TNM Stage
4. Lymph vascular invasion
5. Histologic Tumour type
6. Histologic Grade
7. Nuclear grade
8. Sex steroid receptor
9. Ploidy
10. Proliferative indices.

(S Phase fraction, Thymidine labeling index, mitotic index)

### **B. INVESTIGATIONAL**

1. Proliferative indices  
(Ki67, PCNA / Cycline, M1B1)
2. Histone H3
3. Transforming growth factor (a,b).
4. Epidermal growth factor
5. Insulin like growth factor.

6. Once gene products (HER2 / neu or cerb B2, C-myc, ras)
7. P53 Protein
8. Invasion related markers  
(Cathepein D, Stamelysin 3, Laminin receptor)
9. Angiogenesis factors (PS2, heat shock protein, MDRI)

## **I. TUMOUR SIZE**

< 2 cm – favorable

> 2 cm – Bad prognosis

## **II. LYMPHNODES STATUS**

No histological involvement - 80% 5 year Survival

1-3 positive Lymphnodes - 50% 5 year Survival

> 4 positive Lymphnodes - 21% 5 year Survival

## **III. Tumour Type**

Mucinous Papillary, Tubular, medullary - favourable prognosis

## **IV. TUMOUR GRADE**

Based on bloom and Richardson grading includes.

- Tendency to form tubules
- Pleomorphism
- Hyper chromatic nuclei and mitotic figures

Grade I, II - good prognosis

III - poor prognosis

POINTS	TUBULAR GRADE	NUCLEAR GRADE	MITOTIC INDEX
1.	Well differentiated if tubular structures occupy more than 75% of tumour	Small, uniform staining nucleus	Low ( $0-3.3 / \text{mm}^2$ )
2.	Tubular structures represent 10 –75% of tumour	Moderate variation in nuclear size and shape	Medium( $3.3-7/\text{mm}^2$ )
3.	Tubular structures represent less than 10% of tumour	Marked nuclear pleomorphism with dark staining	High $> 7/\text{mm}^2$

Well differentiated cancer - 3-5 Pts - GRADE I

Moderately differentiated - 6-7 Pts - GRADE II

Poorly differentiated - 8-9 Pts – GRADE III

## V. HORMONAL STATUS

ER / PR Positive - Good prognosis

## VI. HER-2 NEU

Over expression of HER-2 neu - poor prognosis

## **A) RISK FACTOR BIOMARKERS**

Include familial clustering, inherited germ line abnormalities proliferative breast disease with atypia, mammographic densities.

## **B) EXPOSURE BIOMARKERS**

Include measurement of carcinogen exposure such as DNA adducts.

## **C) DRUG. EFFECT BIOMARKERS**

Serum glutathione reductase activity, ornithine decarboxylase activity used to monitor biochemical effect of drugs.

## **D) PROGNOSTIC BIOMARKERS**

### **A) INDICES OF PROLIFERATION**

PCNA is a nuclear protein associated with DNA-Polymerase whose expression increases in G1 phase of cell cycle and its expression correlates with high S phase fraction, aneuploid, high mitotic index, high tumour grade.

### **B) INDICES OF ANGIOGENESIS**

Angiogenesis is necessary for growth invasiveness of breast cancer. VEGF (Vascular Endothelial Growth Factor) over expression is correlated with recurrence in node negative breast cancer.

#### **a) P53:**

P53 plays central role in cell cycle arrest, DNA repair and programmed cell death. P53 over expression correlates with high nuclear grade, high proliferative fraction, aneuploidy, hormone receptor negative status.

At the university of Alabama at Birmingham, analysis of molecular biomarkers of breast cancer prognosis was undertaken. It was found that combination of HER/2 neu and P53 over expression more accurately predicted disease free and overall survival than clinico pathological factors

## **OVERVIEW OF BREAST CANCER THERAPY**

### **I. CARCINOMA – IN SITU (STAGE 0)**

- 1) DCIS involving two or more quadrants require mastectomy.
- 2) Limited disease – lumpectomy + radiation therapy
- 3) Low grade DCIS, < 0.5cm – Lumpectomy alone
- 4) Nonpalpable DCIS – Needle localization and surgical resection

Adjuvant tamoxifen considered in all patients women treated with mastectomy have local recurrence of less than 2% mortality < 2%.

Women treated with lumpectomy and radiotherapy had local recurrence rate of 9% mortality 2%.

Recurrence occurred when tumor size is more than 2.5 cm, DCIS was of comedo type.

### **LCIS**

Since LCIS is considered a marker for increased risk rather than precursor of invasive disease, current treatment is observation with or without tamoxifen. The goal of treatment is to prevent or detect at an early stage the invasive cancer that develops in 25 to 35% of patients. There is no benefit to excising LCIS, as the disease diffusely involves both breast and the risk of invasive cancer is equal for both breast.



## VAN NUYS PROGNOSTIC INDEX FOR DCIS

Score	Size	Margin of excision	Grade
1.	< 1.5 cm	> 0.9 cm	Non high grade, no necrosis
2.	1.5 – 4 cm	0.1 – 0.9 cm	Non high grade with necrosis
3.	> 4 cm	< 0.1 cm	High grade with or with out necrosis

3 – 4 -> small low grade lesions treated by excision alone.

5 – 7 -> Excision + Radiation

8 – 9 -> Mastectomy

## III. EARLY BREAST CANCER

Includes stage I, II A, II B

### SURGICAL TREATMENT

1) Breast conserving therapy including

Lumpectomy, breast irradiation, surgical staging of axilla

2) Modified Radical mastectomy

### ADJUVANT RADIATION THERAPY

4 or more nodes positive

### ADJUVANT CHEMOTHERAPY

All nodes positive cancers

All node negative cancers with adverse prognostic factors like high nuclear histologic grade, negative hormone receptor status.

## **CONTRAINDICATION TO BREAST CONSERVATION SURGERY**

- 1) Multicentric disease
- 2) Prior radiation therapy
- 3) Positive surgical margins
- 4) Contraindication for radiotherapy
- 5) Connective tissue disorder

## **III. LOCALLY ADVANCED BREAST CANCER**

### **(STAGE III A / III B)**

#### **A) Operable disease (Stage III a)**

Modified radical mastectomy, followed by adjuvant chemotherapy, followed by radiotherapy.

Chemotherapy - maximize distant disease free survival

Radiotherapy - maximize loco regional disease free survival

#### **B) In selected stage III a patients**

Neo adjuvant chemotherapy is used to reduce size of primary cancer and permit conservation surgery

#### **C) Inoperable stage III A / III B**

Neo adjuvant chemotherapy is used to decrease loco regional tumour burden permitting subsequent surgery followed by adjuvant chemo and radiotherapy.

## **IV. METASTASIC DISEASE (STAGE IV)**

Treatment for stage IV disease is mainly to enhance a woman's quality of life.

## **HORMONE THERAPY**

Given in women with hormone receptor positive cancers, women with bone soft tissue metastasis only, women with limited asymptomatic visceral metastasis

## **SYSTEMIC CHEMOTHERAPY**

### **INDICATIONS**

- 1) Women with hormone receptor negative cancer
- 2) Symptomatic visceral metastasis.
- 3) Hormone refractory metastasis.

### **SURGERY**

Mastectomy for fungating breast cancer, Pleural effusion, Pericardial effusion,

Pathologic fracture, Spinal cord compression

### **RADIATION THERAPY**

Painful bony metastasis, Unresectable CNS metastasis, Painful chest wall lesions Biphosphonates can be given in addition to chemotherapy in women with bone metastasis

## FOLLOW UP

American society of clinical oncology recommendations for breast cancer follow up care.

1. All patients should learn correct method of breast self examination and should practice it every month.

2. Follow up for first 2 years: visit at 3 months interval

- ❖ At 3 monthly interval : history, physical examination
- ❖ At 6 monthly interval : blood count and biochemistry, USG abdomen  
mammography
- ❖ At yearly interval : chest X ray, pelvic examination and pap smear,  
mammography

Follow up for Next 3 years : visit at 6 months interval

- ❖ At 6 monthly interval: history, physical examination
- ❖ At yearly interval : blood count and biochemistry, USG abdomen  
mammography chest X ray,  
pelvic examination and pap smear.

Follow up for Next 5 years : visit at 1 year interval

- ❖ At yearly interval : history, physical examination
- ❖ At 2 yearly interval : blood count and biochemistry, USG abdomen  
mammography chest X ray,  
pelvic examination and pap smear.

## BREAST CANCER PROGNOSIS

5 years survival rate for

Stage I	94%	III A	52%
Stage II a	85%	III B	48%
Stage II b	70%	IV	18%

## MALE BREAST CANCER

- 1) Accounts for less than 1 % of all breast cancer
- 2) Occur in sixth decade of life.
- 3) It is preceded by gynaecomastia in 20% of men.
- 4) 85% is of infiltrating ductal carcinoma variety.

There is early involvement of pectoralis major and chest wall 80% are hormone receptor positive.

## TREATMENT

Modified radical mastectomy / Radical mastectomy when muscle is involved is the treatment of choice with postoperative radiotherapy and adjuvant CMF in node positive males.

## **MATERIALS AND METHODS**

This is a Study of 95 Cases of Cancer Breast diagnosed and treated at Thanjavur Medical College Hospital over a period of 15 Months from September 2005 to December 2006.

About 112 patients with cancer breast were admitted during this period of which 17 patients were operated and referred for further management from Trichy, Karaikal and elsewhere, they were excluded from the study.

At presentation a detailed history was taken and clinical examination done. Diagnosis was confirmed histologically and investigations like Blood Biochemistry, chest X-ray, ultrasound abdomen were also done to stage the disease. In patients presenting with locally advanced breast disease or metastatic disease investigations like CT abdomen, CT chest, mammogram of opposite breast, pleural fluid and ascitic fluid cytology were done.

The modality of treatment was decided based on stage of disease at presentation and operability. Most of the patients with early breast cancer II A, II B, III A underwent modified radical mastectomy.

Patients with locally advanced breast cancer were subjected to simple mastectomy or simple mastectomy with axillary sampling and all these patients were also given radiotherapy and chemotherapy. Patients with Metastatic disease received chemotherapy and radiotherapy.

All cases were followed up at monthly interval with clinical examination, blood count and biochemistry, ultrasound abdomen, chest X ray, Mammography was done at 3 monthly interval during the follow up period. Data obtained were recorded in a specific proforma and analysed in systematic way.

## **LIMITATIONS OF STUDY**

Due to nonavailability of immunohistochemical studies, in our hospital prognostic markers like ER, PR receptors Her 2 neu receptors were not included as routine in this study group. They were done only for affordable patients that is for 18 patients.

## **OBSERVATION AND DISCUSSION**

**All histologically proven cases of cancer breast presenting with lump, ulcer, discharge, metastatic symptoms were included in the study.**

### **EXCLUSION CRITERIA**

17 patients who were operated and referred for further management from Trichy, Karaikal and elsewhere were excluded from the study.

### **SEX**

Only < 1% of cases of cancer breast occurred in men. In our study only two patients were male. One had invasive intraductal carcinoma and was treated with modified Radical mastectomy and other had malignant fibrous histiocytoma with lung metastasis during presentation treated with chemotherapy. They account for 2.10%.

### **AGE**

Incidence of breast cancer increases with age. In U.S lifetime risk of developing breast cancer is 12.2% or 1 in 8 women. The age-adjusted incidence of breast cancer shows increase in incidence to 4% between 1980 and increase occurred primarily in women aged 55 yrs or older.

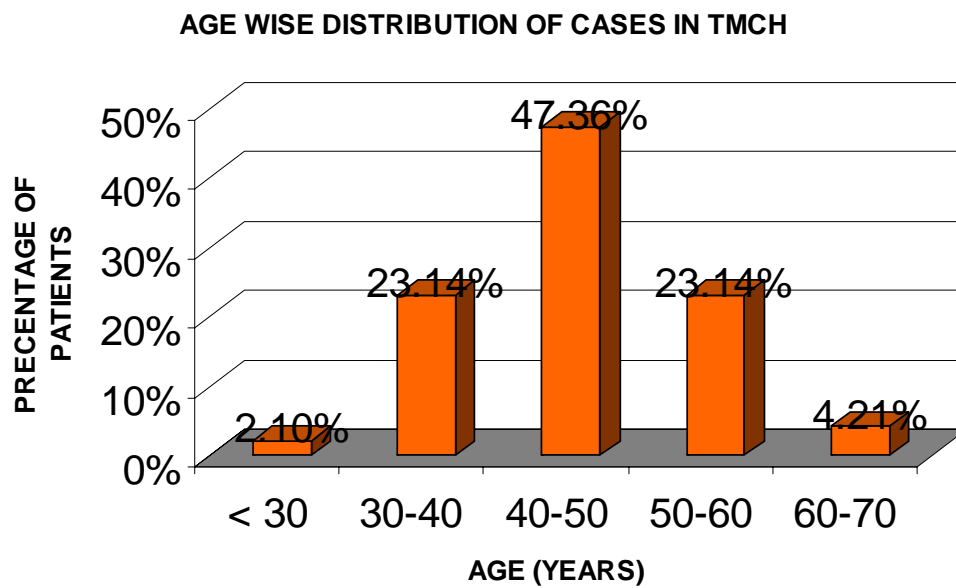


In our study.

Age Group (years)	No. Of Patients	Percentage
< 30	2	2.10%
30-40	22	23.14%
40-50	45	47.36%
50-60	22	23.14%
60-70	4	4.21%

Youngest age was 24 years.

Oldest age was 65 years.



Most of our patients were between 40 – 50 years.

## **FAMILY HISTORY**

- The relative risk of developing breast cancer is 1.7 to 2.5 in women with a history of breast cancer in a first degree relative, 1.5 with an affected second degree relative. About 5% of breast cancers appear to have inherited gene mutations that are dominant and highly penetrant.
- In our study there was no significant family history.

## **SOCIOECONOMIC STATUS**

- ❖ Cancer breast is more common in women of higher socioeconomic status, but in our study most of the patients belonged to lower socioeconomic status.
- ❖ This can be explained by the fact that most of the people utilizing the health services of this institution are from lower socioeconomic group.

## **DIETARY FACTORS**

Epidemiological studies of fat consumption and cancer risk have produced inconclusive results. But however weight does correlate with breast cancer risk. Multiple studies demonstrate a relative risk of 1.4 for each 24 Grams of alcohol (about two drinks) consumed

In our study all were taking mixed diet. None of them consumed alcohol.

## **(IONISING RADIATION) ENVIRONMENTAL FACTORS**

Radiation exposure after age 40 produces minimal increase in risk. Risk reported in women receiving mantle radiation for treatment of Hodgkin's disease before 15 years of age. Other environmental factors including exposure to electromagnetic fields and organochlorine pesticides have been suggested to increase breast cancer risk.

In our study none gave history of previous radiation

## **MENSTRUAL STATUS**

Increased exposure to endogenous estrogen peaks during menstrual cycle and predisposes to cancer breast. There appears to be 20% decrease in breast cancer risk for each year that menarche is delayed. The relative risk of developing breast cancer for a women with natural menopause before age 45 is half that of a woman whose menopause occurs after 55. oophorectomy before 50 years decreases breast cancer risk.

- In our study 3 patients attained menarche before age of 12 and 6 attained menopause after 55 years 4 underwent total abdominal hystrectomy with bilateral salphingo ophorectomy for co.existing gynaecological problems like dysfunctional uterine bleeding, fibroid
- 45 patients were premenopausal 47.36%
- 44 Patents were postmenopausal 46.31%

## **PARITY**

- Nulliparous have a relative risk of about 1.4.
- In our study 5 patients were nullipous which was about 5.26%.

## **AGE AT FIRST PREGNANCY**

First full term pregnancy after age 30 have a twofold to fivefold increase in breast cancer risk compared with women having a first full term pregnancy before age 18 or 19. In our study 9 patients had their first child above the age of 28 years.

## **LACTATION**

Protective effect of breast feeding is hard to assess as it is difficult to differentiate from the effects of pregnancy. Recent data indicate independent protective effect of breast feeding although not all studies confirm this finding.

In our study 3 patients had not breast fed their children.

## **ORAL CONTRACEPTIVE PILLS**

Relative risk of developing breast cancer while taking oral contraceptives is 1.24. On stopping therapy risk diminishes to 1.01 over ensuring 10 years.

## **HORMONE REPLACEMENT THERAPY**

Estrogen replacement therapy increases relative risk by 1.8 for use of 5 years or less and 2.65 for longer than 5 years.

In our study none of the patients had used either OCP/HRT.

## PREVIOUS HISTORY OF BENIGN BREAST DISEASE/BREAST CANCER

Nonproliferative disease is not associated with increased risk of breast cancer. Proliferative disease without atypia results in small increase in relative risk 1.5 to 2.0 Atypical hyperplasia is associated with relative risk 4 to 5.

Study	Relative risk nonproliferative	Proliferative without atypia	Atypical hyperplasia
nashville	1	1.9	5.3
Florence italy	1	1.3	13
Our study	3 cases	4 cases	3 cases

3 presented with Atypical hyperplasia

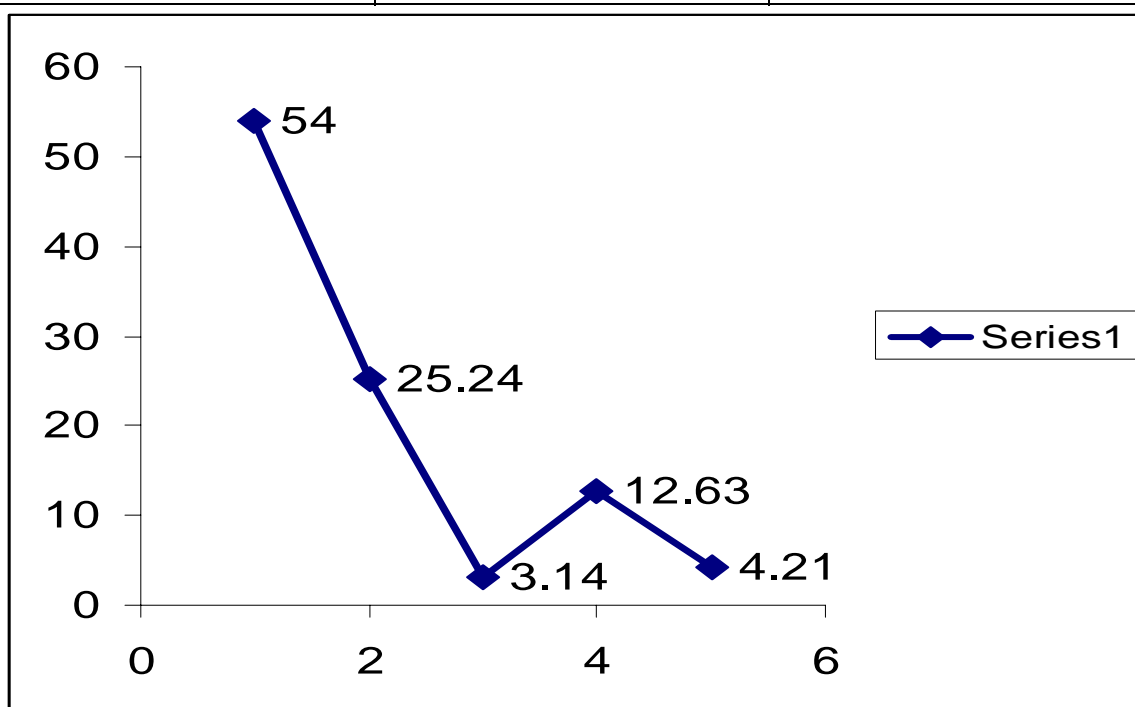
3 – fibroadenoma (Nonproliferative)

4 – Sclerosing fibroadenosis (Proliferative without Atypia)

## CLINICAL PRESENTATION

- In our study clinical presentation were as follows

	NO. OF PATIENTS	PERCENTAGE
Painless lump	52	54
Lump with pain	24	25.24
Lump with ulcer	3	3.14
Nipple discharge	12	12.63
Metastatic symptoms	4	4.21



Most of the patients present with painless lump

1 – Presented with weakness of lower limb

1 – Presented with Seizures

2- dyspnea

## **SITE OF INVOLVEMENT**

- Commonest site involved in ca breast is upper outer Quadrant.

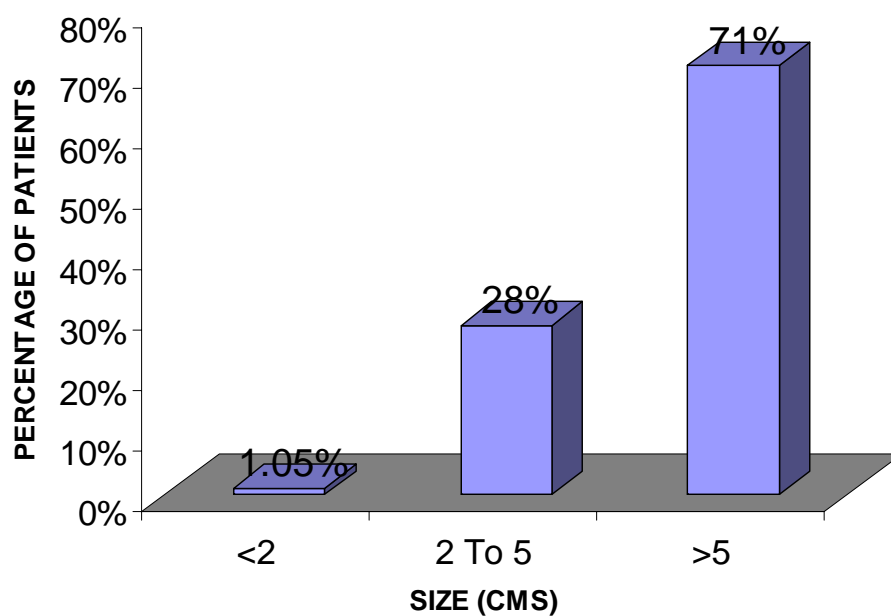
In our study it was as follows.

<b>SITE</b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Upper outer	54	56.84%
Upper inner	12	12.63%
Lower outer	4	4.21%
Lower inner	4	4.21%
Central	12	12.63%
All	9	9.46%

### TUMOR SIZE AND PROGNOSIS

SIZE IN (CMS)	NUMBER	PERCENTAGE
<2	1	1.05%
2-5	25	28%
>5	64	71%

### TUMOR SIZE DURING PRESENTATION



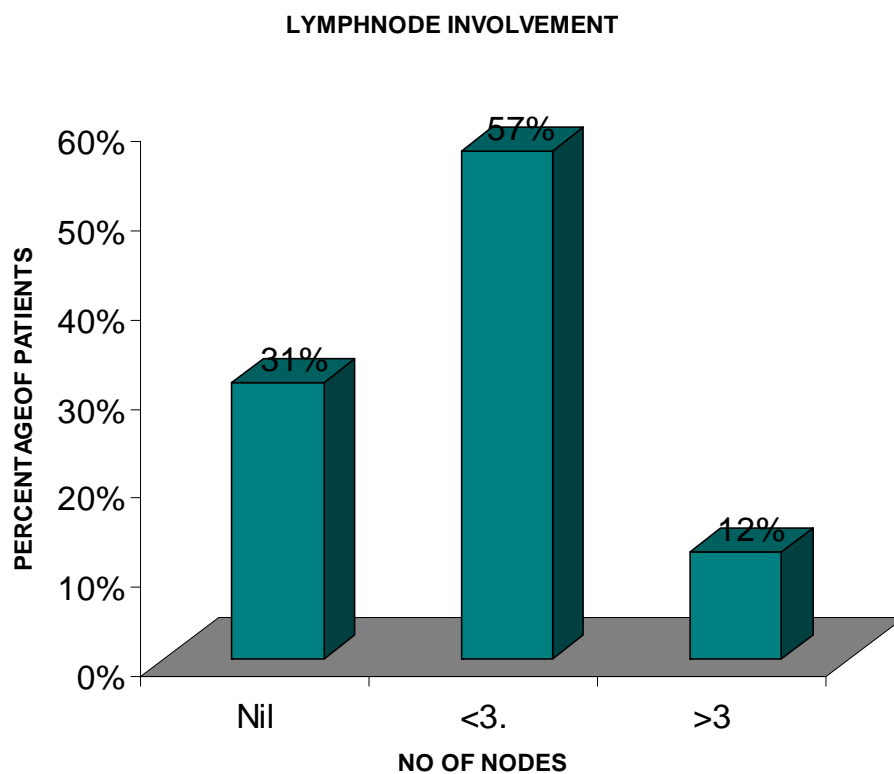
Increased tumor size is associated with early local recurrence, 5 cases who had local recurrence in our study had tumor size more than 8 cm during presentation.

Four patients with lung metastasis had tumor size more than 8 cm



### LYMPHNODE INVOLVEMENT

No. of nodes	No. of patients	%	5 years survival
Nil	29	31%	80%
<3.	54	57%	50%
>3	12	12%	21%



69 patients show clinically positive lymphnodes

21 are node negative

3 – had bilateral axillary nodes

More than 3 nodes were positive in 12 of our patients

Of which one patient presented with lung metastasis 4 patients developed local recurrence during follow up

3 had opposite axillary node involvement during follow up

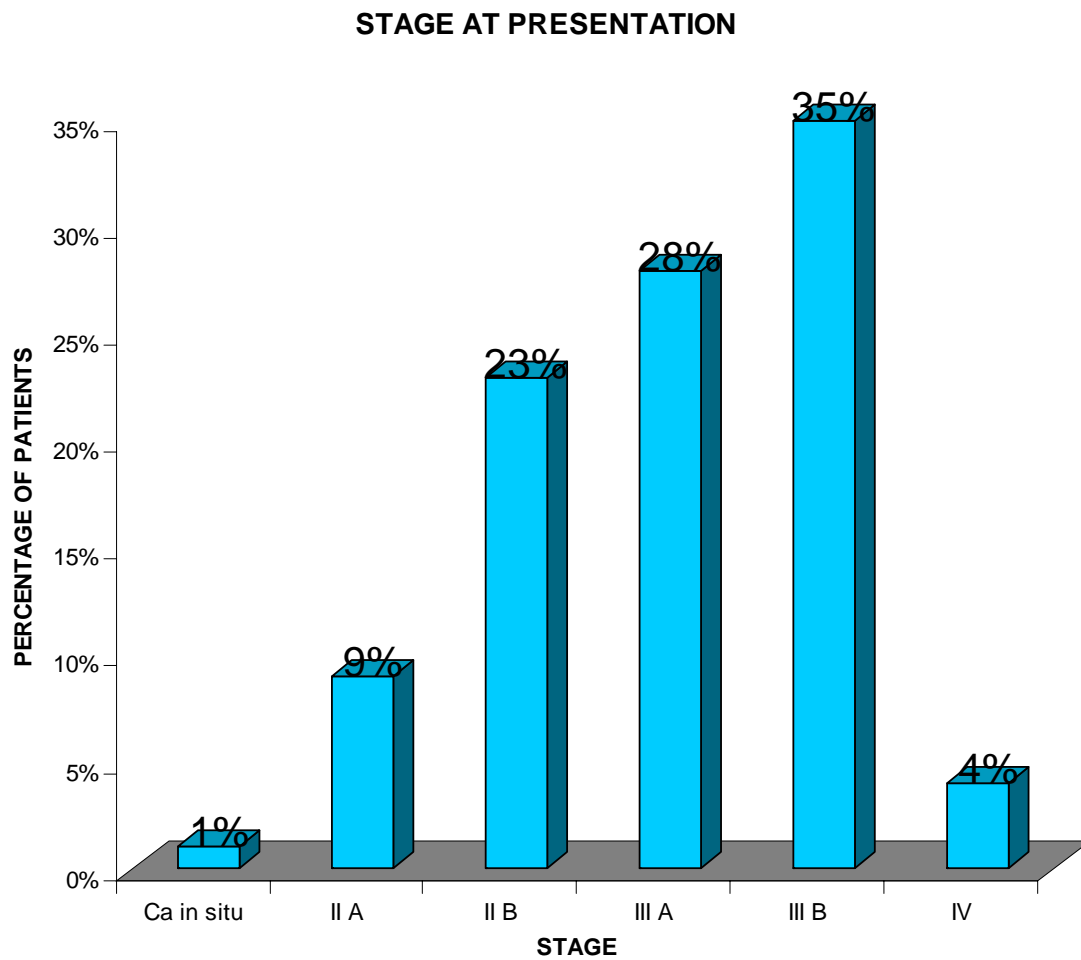
3 had supraclavicular node involvement

One patient with supraclavicular node involvement developed liver metastasis

### **STAGE AT PRESENTATION**

<b><u>STAGE</u></b>	<b>NUMBER</b>	<b>PERCENTAGE</b>
Carcinoma in situ	1	1.05
II A	9	9.47
II B	22	23.15
III A	26	27.36
III B	33	34.73
IV	4	4.21

Most of the patients presented in stage III that is 62.09% for which 5 year survival rate is only about 41%.



2 patients who later developed lung metastasis where of stage III B

one patient developed liver metastasis.

3 patients later developed local recurrence

## **PATHOLOGICAL TYPES**

- According to world statistics Invasive ductal carcinoma account for 85 % to 90% of all breast cancers

In our study Pathological varieties encountered were as follows.

<b>TYPE</b>	<b>NUMBER OF CASES</b>	<b>PERCENTAGE</b>
Invasive ductal carcinoma	83	87.36%
Ductal carcinoma in situ	1	1.05%
Lobular carcinoma	2	2.10%
Malignant Phylloides	1	1.05%
Lobular + Ductal component	2	2.10%
Fibrous Histiocytoma	1	1.05%
Colloid carcinoma	1	1.05%
Medullary carcinoma	3	3.14%
Pagets	1	1.05%

The risk of primary breast cancer in contra lateral breast is significant. approximately 1% per year. Patients younger than 55 years at the time of diagnosis or lobular histology appear to increase this risk to 1.5%.

In our study,

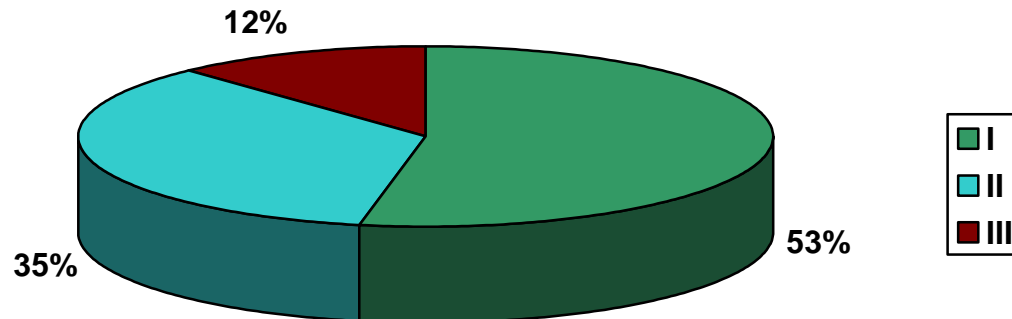
One patient with malignant fibrous histiocytoma presented with lung metastasis. All the other patients who developed metastasis are of invasive ductal carcinoma

## HISTOLOGICAL GRADE OF TUMOR

- Grade is classified as I, II, III on the basis of tubule formation, nuclear pleomorphism and mitotic rate as per bloom and Richardson classification.
- In our study.

GRADE	NUMBER	PERCENTAGE
I	42	53
II	32	35
III	10	12

## HISTOLOGICAL GRADE OF TUMOR



10 patients are of histological grade III of which 3 developed local recurrence

- ❖ 2 developed lung secondarius during follow up
- ❖ 1 developed spinal metastasis

## **RECEPTOR STUDIES**

ER/PR Receptor Studies was done for 18 patients who were affordable.

It was positive in all postmenopausal patients – 12

3 Premenopausal patients

They were given Tamoxifen

ER-Negative Receptor Studies noted in 3 Premenopausal patients.

They were given combination chemotherapy.

### NOTTINGHAM PROGNOSTIC INDEX

T Size (cms) x 0.2      +Lymphnode stage (1 – 3)      + Histological grade (1-3)

1 – No Node

2 – up to 3 Node

3 - > 3 Node

<b>NPI</b>	<b>Prognosis</b>	<b>15 years survival</b>
<3	Good	80%
3.1 – 5.4	Moderate	42%
>5.4	Poor	13%

In our study

<b>NPI</b>	<b>No. of Patients</b>
<3	8
3.1 – 5.4	55
> 5.4	32

During follow up it was detected out of this 32 patients with NPI >5.4, 5 had local recurrence, 3 had lung metastasis, 2 spine metastasis, 1 brain metastasis, 2 had supraclavicular node involvement.

## INVESTIGATION

In our study all the patients were subjected to routine investigation like urine albumin, sugar, blood urea sugar, Sr. creatinine, x ray chest, Fine needle Aspiration cytology, ultra sound abdomen.

Mammogram of opposite breast was done in all locally advanced breast cancers. 33 patients underwent mammogram and were found to be normal.

CT chest, pleural aspiration cytology was done for 2 patients who presented with lung secondaries USG abdomen, x ray of long bones and vertebrae taken to exclude other metastasis.

CT. dorsolumbar spine was done in one patient who had collapse of D6 vertebra for which local radiotherapy was given.

CT brain was done in one patient who presented with headache, Seizures which showed metastatic deposits in cerebellar hemisphere. She developed raised intracranial tension for which ventriculoperitoneal shunt was done.

CT abdomen was done in patients with Ascites who had multiple liver secondaries. Paracentesis was done and malignant deposits detected in cytological analysis.

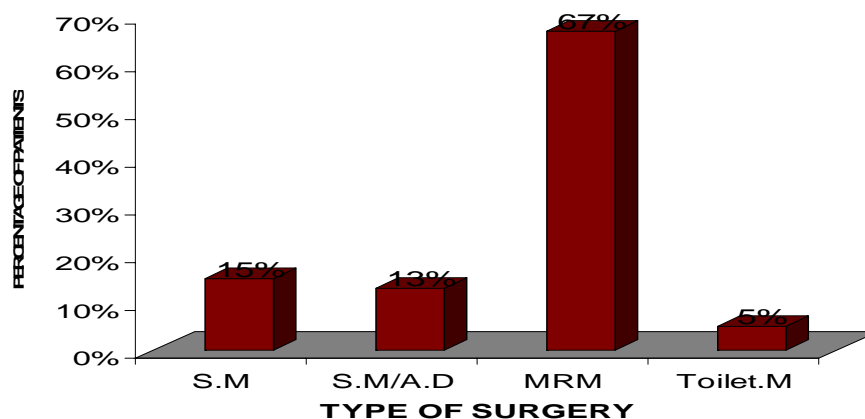


## MANAGEMENT

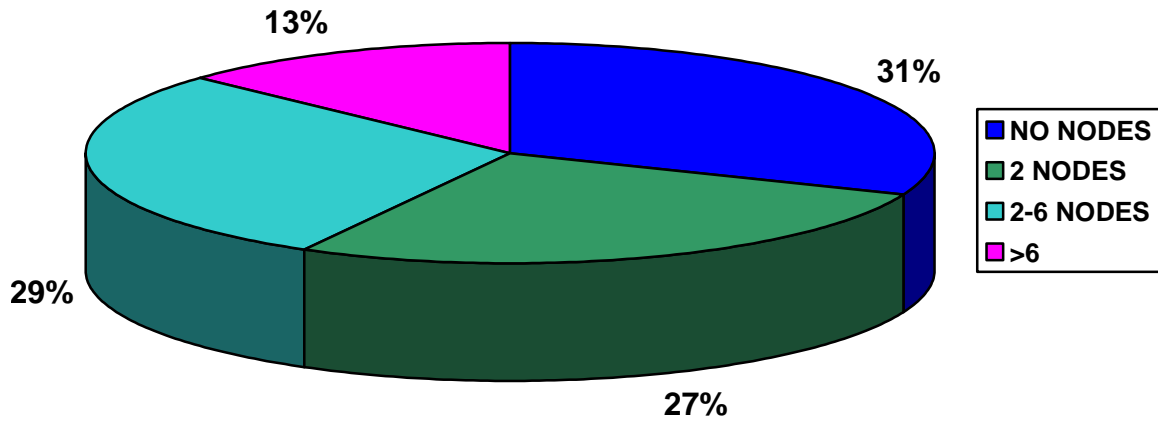
After confirming the diagnosis staging was done by TNM classification most of the cases with stage I and II were subjected to modified radical mastectomy, simple mastectomy with or without axillary dissection was done for stage III and IV. Adjuvant chemotherapy and hormone therapy was given to most of the patients. Locally advanced cancer patients received radiotherapy. Patients with Brain and spinal metastasis received loco regional radiation.

TYPE OF SURGERY	NO : OF PATIENTS	PERCENTAGE
Simple mastectomy	14	15
Simple mastectomy with axillary sampling / clearance	11	13
Modified radical mastectomy	59	67
Toilet mastectomy	5	5

### SURGICAL MANAGEMENT IN TMCH



### LYMPHNODE WITH METASTATIC DEPOSITS IN RESECTED SPECIMEN



In our study minimum of three to maximum of Twentytwo lymphnodes were found in resected specimen among which.

- No metastatic deposits were found in 20 patients (31 %)
- 2 nodes positive for deposits in 17 patients. (27%)
- 2-6 nodes were positive for deposits in 19 patients. (29%)
- More than 6 nodes were positive for deposits in 13 patients. (13%)

## **RESECTED MARGINS**

- In our study
- Positive resection margins were found in 17 patients they were given radiotherapy 3 of them developed local recurrence. 2 developed metastasis one in lung, one in brain.

## **ADJUVANT THERAPY:**

Chemotherapy with CMF given to all stage III B

Patients – 33

Patients with more than 3 nodes received Chemotherapy- 12 patients

Patients presenting with metastatic disease received chemotherapy – 4 patients

Tamoxifen given to all postmenopausal patients-47

## **RADIOTHERAPY**

- Adjuvant radiotherapy was given to patients whose Tumor size is more than 5 cm or with four or more clinically positive axillary lymphnodes or who have positive resection margins after surgery.
- Tumor size more than 5cm - 64 patients
- Positive resection margins found in 17 patients

## FOLLOW UP

All the patients were followed up with clinical examination at monthly interval and with blood count and biochemistry, ultrasound abdomen, Mammography at 3 monthly interval.

Follow up period were from 6 months to 20 months.

76 out of 95 patients came for regular follow up (80%)

In our study, 7 were detected to have local recurrence. They were treated with Radiotherapy and chemotherapy.

8 developed distant metastasis

Lung secondaries - 4

Brain secondaries - 1

Spine metastasis - 2

Liver metastasis -1

They were given chemotherapy .

CT chest, pleural aspiration cytology for confirmation of malignant deposits done in patients with lung secondaries and pleural effusion

CT Dorsolumbar spine done in patients with spine metastasis one had D6 vertebra compression and local radiation was given

CT brain was done in the patients with brain metastasis and one developed raised intracranial pressure for which ventriculoperitoneal shunt was done.

CT abdomen was done in patient with liver metastasis, who had Ascites. Paracentesis of Ascitic fluid was done and malignant cells were detected in cytological analysis.

## SUMMARY

• **In our study the following observations were made.**

1. The commonest age of presentation was 40 – 50 years of age.
2. About 47.36 were premenopausal and 46.31 were postmenopausal 5.26% were Nullipara.
3. Commonest mode of presentation was painless lump in 46.31%.
4. Most of the patients presented with stage III disease 62.09%.
5. Lymphnode positivity during presentation was about 69.46%.
6. Invasive ductal carcinoma was the commonest pathological variety in our stage. Histological grade I was found in 56.84%.
7. Most of our patients presented with Tumor size more than 5 cm (67.36%).
8. Modified Radical mastectomy was done in 59 patients simple mastectomy with axillary clearance in 11 patients.
9. Resected margins were found to be positive in 17 patients all of them were given radiotherapy. Three of them developed locoregional recurrence 2 developed metastasis. One in lung, one in brain.
10. Lymphnode examination for metastatic deposits in pathological specimen showed positivity in 49 patients. More than 6 nodes were positive for metastatic deposits in 13 patients. Of which 4 developed locoregional recurrence and one developed liver, lung metastasis. One patient with supraclavicular node developed spine metastasis. All patients were treated with chemotherapy and radiotherapy.

11. Histologic grade 1 found in 44.21 of patients, grade 3 found in 10.52% of our patients (10 Pts) of which 3 had locoregional recurrence. 2 developed lung secondaries during the follow up period.
12. 4 patients who developed lung metastasis had Tumor size more than 8cm during presentation and 1 of them had histological grade III invasive ductal carcinoma. Supraclavicular node was involved in one patient.
13. One patient with brain metastasis had Tumor size of 6 cm during presentation, she had more than 6 nodes positive for deposits in pathological resection specimen.
14. One patient who developed both spine and liver metastasis presented with tumor involving all quadrants.
15. Nottingham Prognostic index was found to have direct correlation with prognosis in our study. In 32 of our patients with NPI more than 5.4, 5 had local recurrence, 3 had lung metastasis, 2 developed spine metastasis and one developed brain metastasis during follow up.

## **CONCLUSION**

The aim of the study is to identify the prognostic factors in primary breast cancer. The utility of prognostic factors lies not only in their ability to prognosticate the outcome of the disease but also in detecting early disease, monitoring of disease course, screening for recurrent disease. They also help in deciding upon application of adjuvant systemic therapy and in identifying patients of poor prognosis who warrant more aggressive investigational therapies.

Commonly assessed prognostic factors are number of lymphnodes in axilla, tumour size, TNM stage, histologic tumour type, histologic tumor grade. Sex steroid receptor study not done for all patients since it is not available in our institution.

Tumor size has linear relationship with prognosis and eventual metastasis. As tumor size increased, survival decreased regardless of lymphnode status and as lymphnode involvement increased, survival status decreased regardless of tumor size. Medial lesions have slightly worse prognosis than lateral lesions due to involvement of mammary nodes. Histological grade of tumor also seems to correlate with regional recurrence and metastasis. Patients with post operative positive resection margins were also at high risk of locoregional recurrence.

Hence it is suggested that for patients with breast cancer, the prognostic markers that can be routinely assessed are axillary lymphnode status, tumour size, histologic grade, estrogen receptor status, post operative findings like positive margins. They are helpful in planning adjuvant treatment.

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## PROFORMA

Name:

Age:

IPNO:

ADDRESS:

DOA

### **HISTORY**

Lump

Duration

Pain

Discharge

Ulcer

Others

Axillary Node

Metastasis

### **REPRODUCTIVE HISTORY**

Age at Menarche :

Age at First Child Birth :

Parity :

Duration of breast feeding :

Menstrual Status :

Hormonal Therapy :

### **FAMILY HISTORY**

Number of Relative affected :

Other Co. existing Malignancy :

Age at which Cancer Detected :

Laterality :



## **TREATMENT HISTORY**

Previous Benign Diseases :

Previous Malignant Disease :

## **PHYSICAL EXAM**

### **BREAST MASS:**

Size :

Location :

Consistency :

Fixity :

### **SKIN CHANGES:**

Erythema : Dimpling :

Edema/Pseudorange : Satellite nodules :

### **NIPPLE CHANGES**

Retraction : Eversion :

Discoloration : Discharge :

### **AXILLARY NODE**

Number : Fixity :

Location :

### **Supraclavicular Node**

### **Opp. Breast & Axilla**

### **Abdomen**

### **Respiratory system**

### **Spine & Cranium**

### **P/R & P/V**

### **Stage:**

## **Investigations**

1. FNAC
2. X-Ray Chest
3. Mammogram
4. USG abdomen
5. CT. Thorax
6. LFT
7. Others X-Ray long bones  
Bone Scan

## **Surgery**

### **HPE REPORT**

Type of Malignancy :

Grade :

Resected Margin :

Lymphnode Status :

Receptor Status :

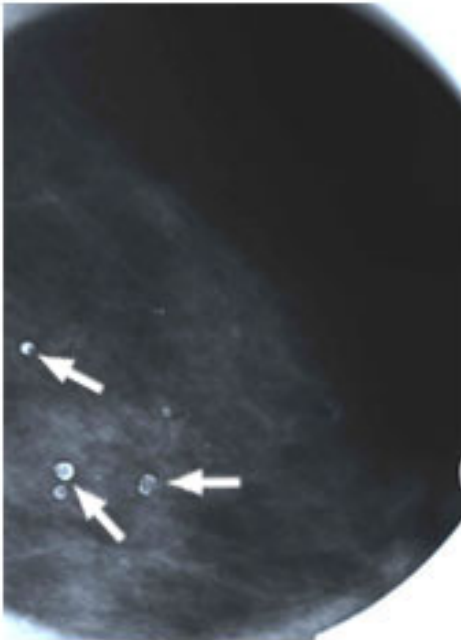
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### **RADIOTHERAPY**

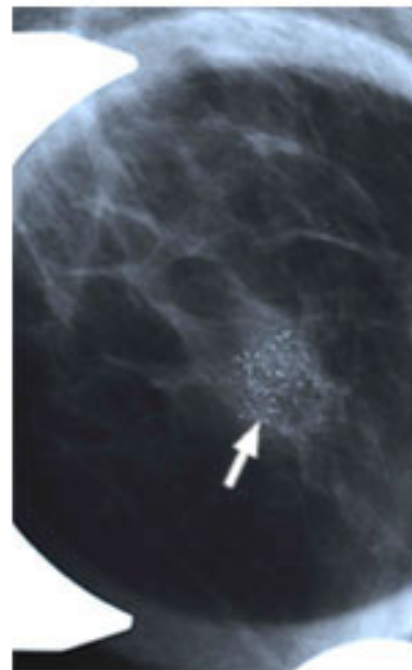
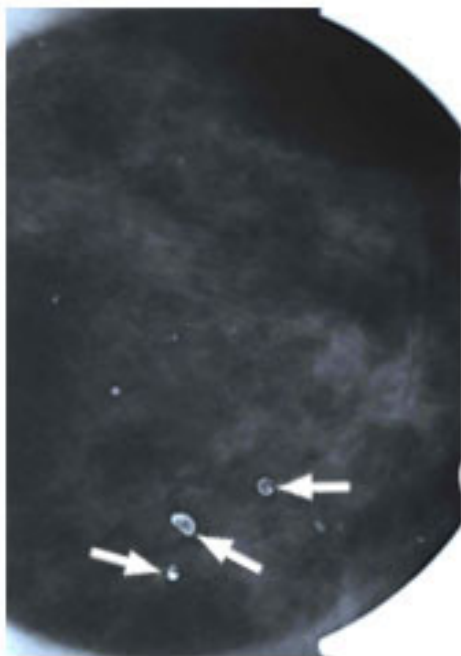
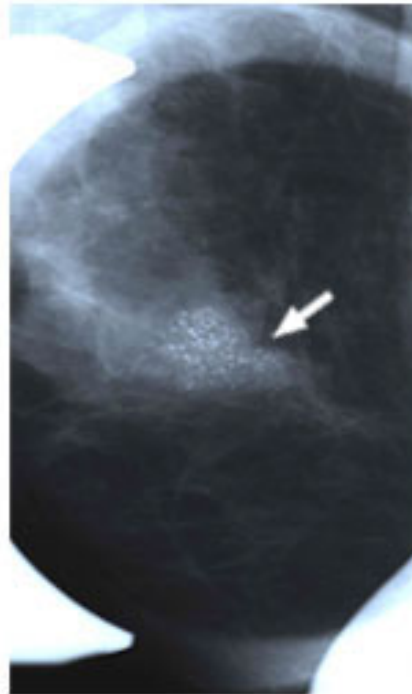
FOLLOW UP

# MAMMOGRAM

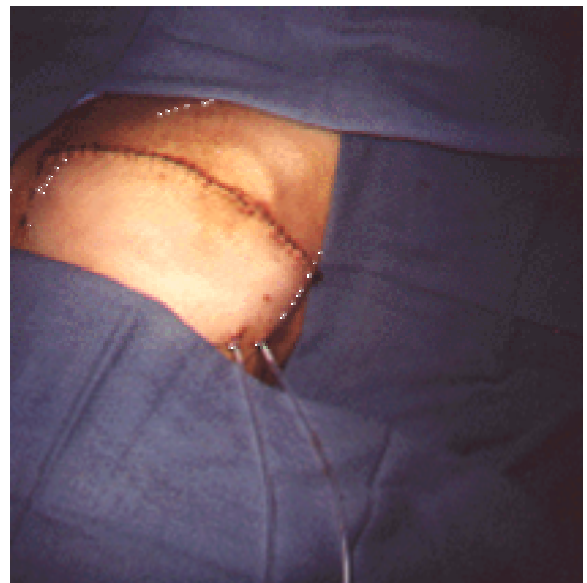
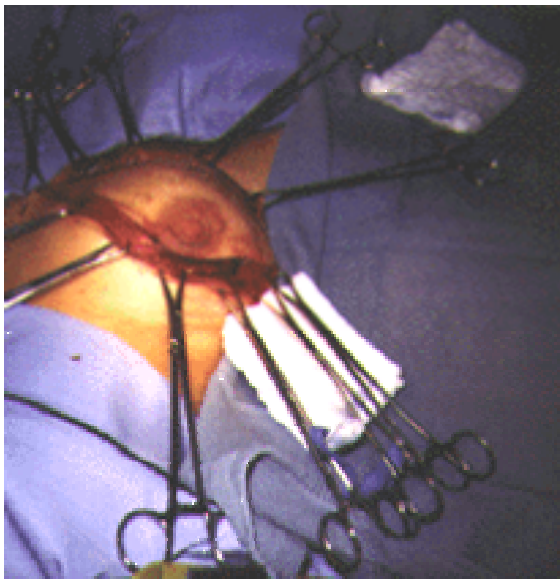
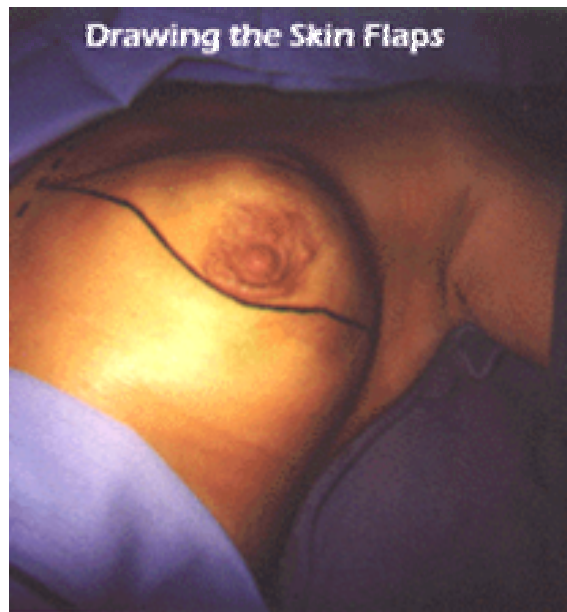
Noncancerous (benign)  
calcifications



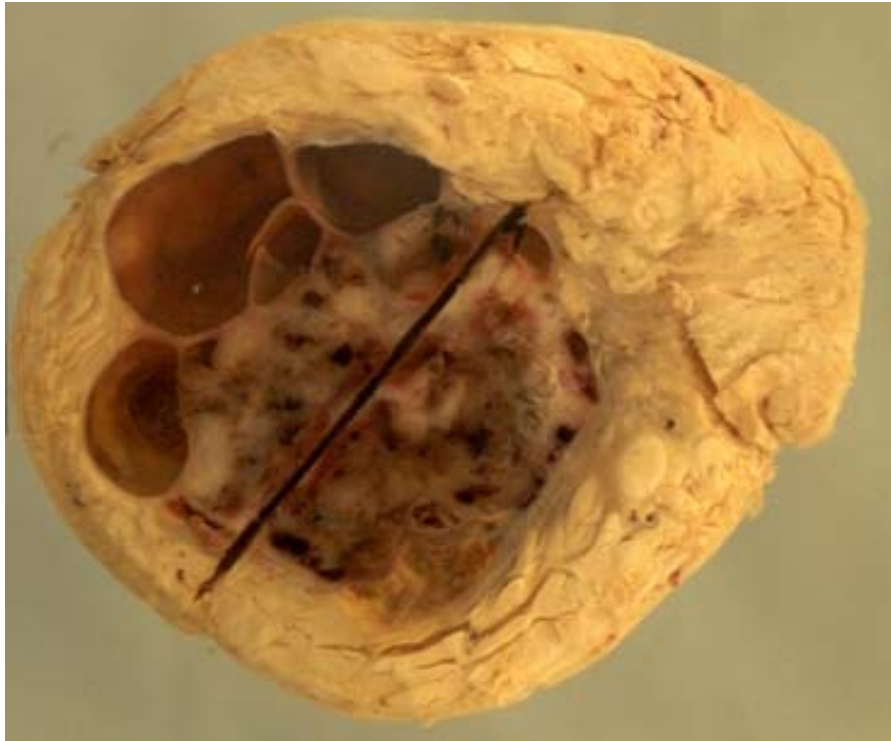
Cancerous (malignant)  
calcifications



## MODIFIED RADICAL MASTECTOMY



## PATHOLOGICAL SPECIMEN OF CARCINOMA BREAST



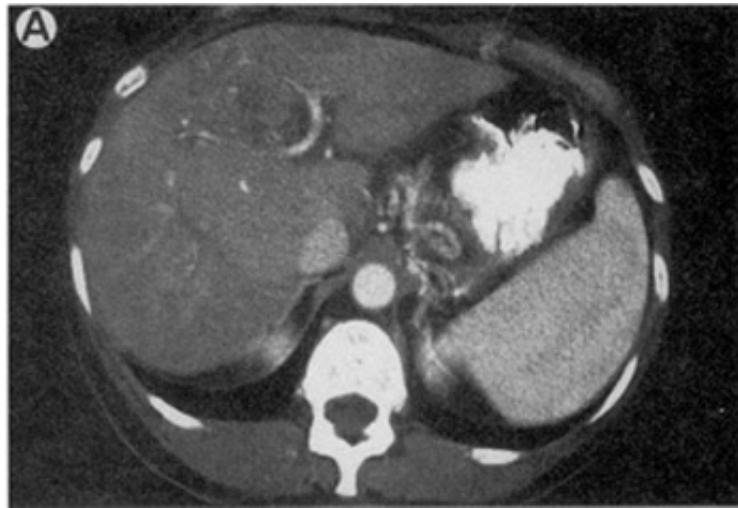
## **X-RAY LUNG METASTASIS**



## X-RAY BONE METASTASIS

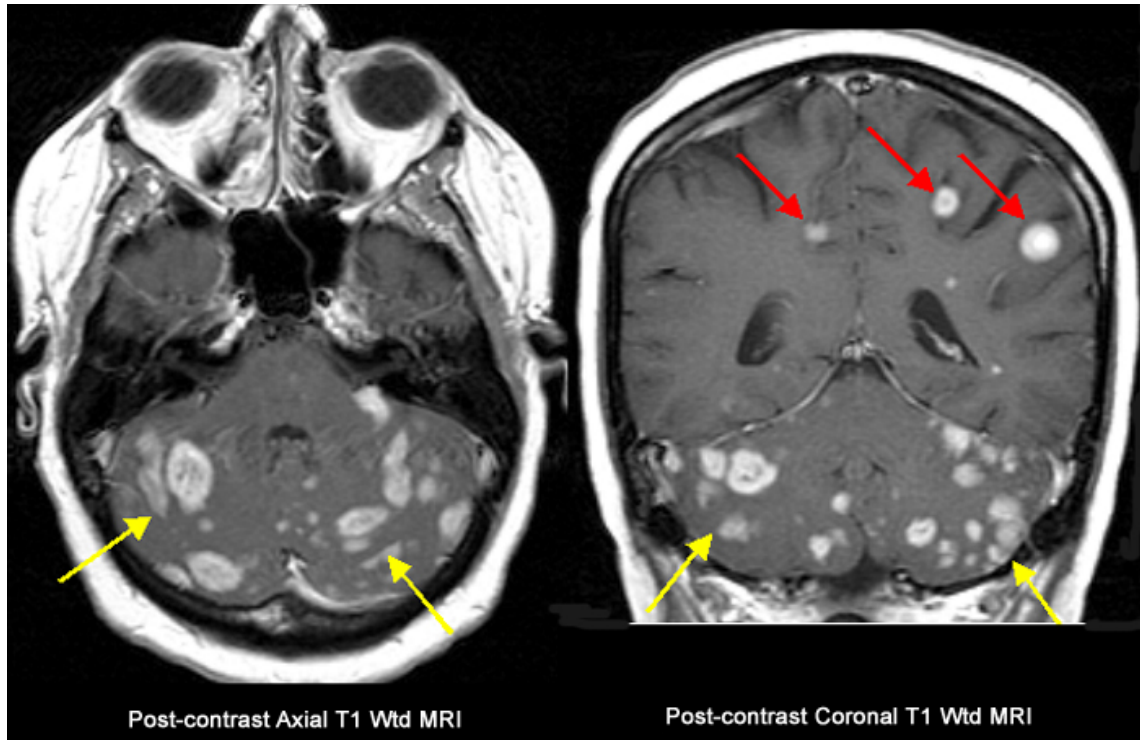


## LIVER METASTASIS





## MULTIPLE METASTASIS TO THE BRAIN



## **CANCER EN-CUIRASSE**



## **PAGET'S DISEASE OF THE NIPPLE**



**PEU DE ORANGE**



**LUMP**





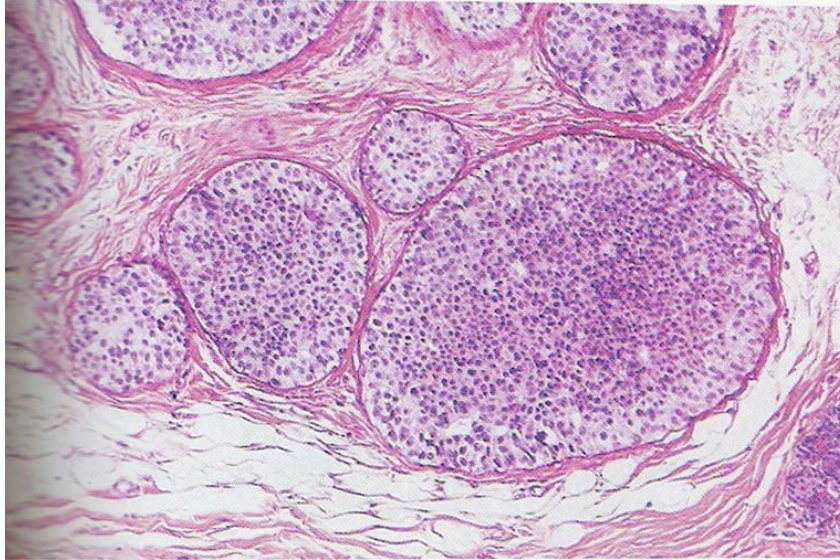
## ULCERATIVE GROWTH



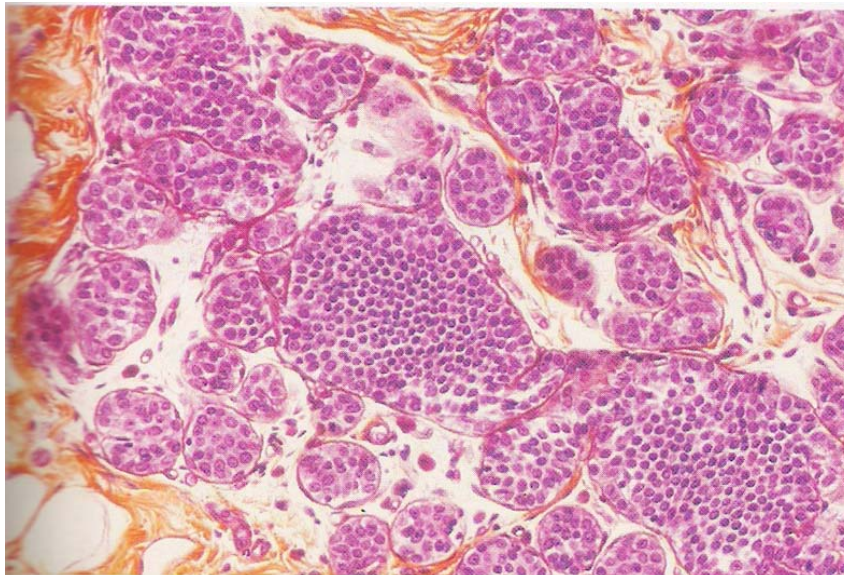
## LUMP



## DCIS

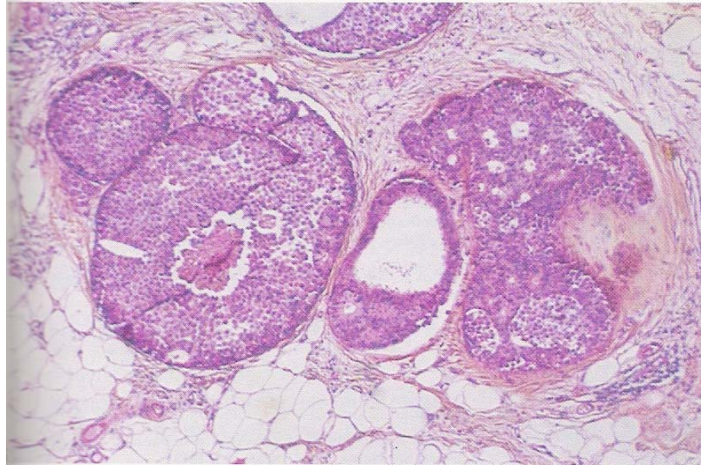


## LCIS

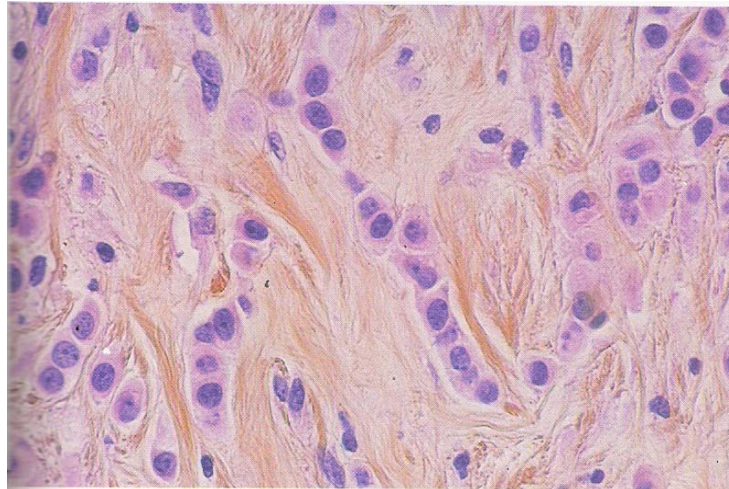




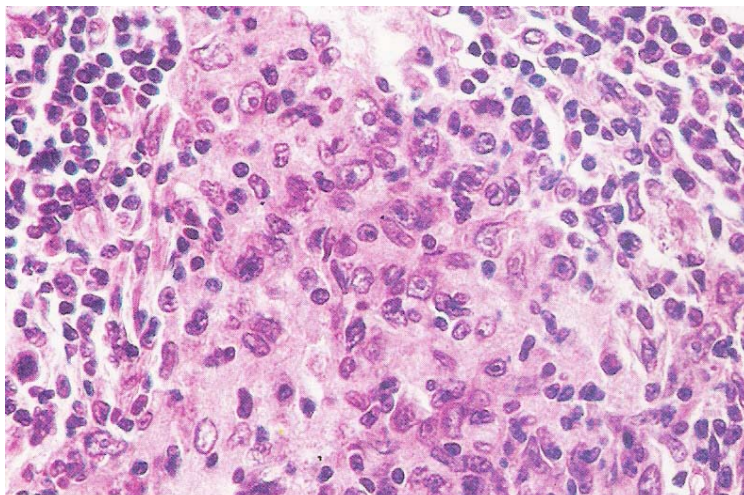
## **IDC / LOBULAR**



## **INVASIVE LOBULAR**

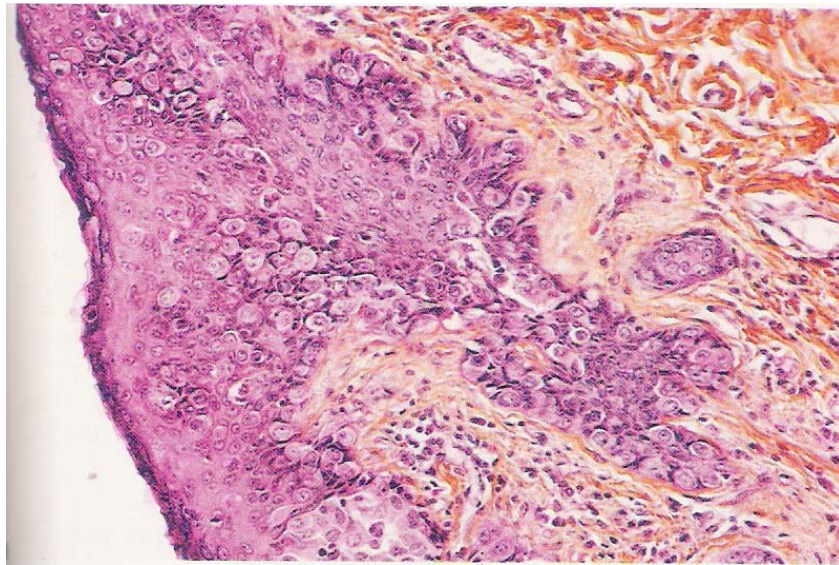


## **MEDULLARY CARCINOMA**

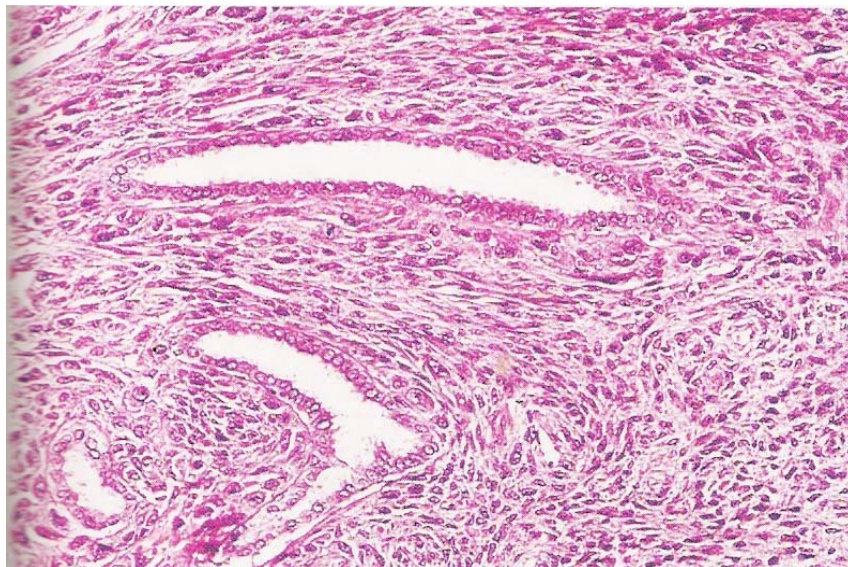




## **PAGETS**



## **PHYLLOIDES**



Sno	Name		Menstrual Satus	Parity	Presentation	Silte	Quadrant	Benign disease	Tumour size	Node	Stage	Surgery	Histology				Followup		NP I
													Type	Grade	Lymphode	Margins	Local	Metastas	
1	Arokiamary 912968	40	Pre	4	Lump	R	U.Outer	Nil	5x4cm	Single	II b	MRM	IDC	I	Negative	free			3
2	Muniyammal 910782	63	Menopause	3	Lump	L	U.Outer	Nil	6x5cm	Single	III b	MRM	IDC	I	One/6	free			4.2
3	Devaki 919850	45	Hyst	3	Lump	R	U.Outer	Nil	5x4cm	Single	II b	MRM	IDC	I	Negative	free			3
4	Punitha 920025	47	Pre	2	Lump	L	U.Outer	Nil	4x5cm	Single	II b	MRM	IDC	gradel	4/6+ve	free			5
5	Lakshmi 918798	43	Menopause	2	Lump,Ulcer,discharge	R	All	Nil	8x7	Single	III b	Simple	IDC	I				Lung	4.6
6	Saroja 885614	50	Menopause	2	Lump	R	U.Outer	Nil	6x4cm	Single	III A	MRM	IDC	II	2/6+ve				5.2
7	pitchaiammal 918124	41	Pre	Null	Lump,pain,discharge	L	Central	Nil	10x8cm	Single	III A	MRM	IDC	I	3/6 +ve	Involved			5
8	Chandra 916618	60	Menopause	6	Lump	R	U.Outer	Nil	6x5cm	Nil	III b	MRM	IDC	I	1/6+ve				3.2
9	Anjamal	50	Menopause	4	Lump	R	U.Outer	Nil	6x3cm	Nil	II b	MRM	IDC	I	7/7+ve	free			3.2
10	Rajeshwari	52	Hyst	2	Lump,pain	R	U.Outer	Nil	3x2cm	Nil	II A	MRM	IDC	I	4/6-ve	free			2.6
11	Maragatham 915255	55	Menopause	3	Lump	R	U.Outer	Nil	8x7cm	2	III b	Simple M	IDC	II		free			6.6
12	Mariyayee 912413	55	Menopause	4	Lump,pain,discharge	R	Areola	Nil	2x1cm	1	II A	MRM	IDC	II	6/6+ve	Involved			3.4
13	Geetha911685	45	Pre	Null	Lump,pain,discharge	R	All	Atypical hyperplasia	14x10cm	3	III b	Simple M	IDC	III		Involved	L.R		7.8
14	Eashwari	38	Menstruating	2	Lump	L	U.Outer	Nil	3x2cm	Single	II b	MRM	IDC	I	3/6+ve	free			3.6
15	Senthamarai	60	Hyst	3	Lump	R	U.Outer	Nil	6x5cm	2	III A	MRM	IDC	II	7/7+ve	free			6.2
16	Vishalakshi	50	Menopause	3	Lump	R	Central	Nil	6x6 cm	1	III A	MRM	IDC	I	5/7 +ve				5.2
17	Lakshmi 841372	50	Menopause	2	Lump	R	U.Outer	Nil	4x4 cm	Nil	III A	MRM	IDC	I	Negative	free			2.8
18	Valarmathy	35	Pre	2	Lump	R	U.Outer	Nil	7x8 cm	Nil	III b	MRM	IDC	I	Negative	free			3.6
19	Masilamani	48	Pre	1	Lump	R	U,L Outer	Atypical hyperplasia	8x6 cm	2	III b	Simple M	IDC	II		free			6.6
20	Malarazhagi 927823	45	Pre	2	Lump	L	Central	Nil	5x3 cm	1	III A	MRM	IDC	II	4/6+ve	free			6
21	Prema 928032	50	Menopause	2	Lump	L	U,L Outer	Nil	15x10 cm	1	III A	MRM	IDC	I	5/7+ve				7
22	Thiruvarangam 935443	55	Menopause	3	Lump	R	All	Nil	15x10 cm	3	III A	MRM	IDC	I	4/6+ve				7
23	Dhanam	65	Menopause	3	Lump, Pain	L	U, Outer	Nil	3x4cm	Nil	II A	MRM	IDC	I		free			2.8
24	Chandrakala 929317	45	Menopause	Null	Lump, Pain	R	L.inner	Nil	2x1cm	3	II A	MRM	IDC	I	6/6+ve	free			4.4



25	Suseela 924972	50	Menopause	2	Lump	L	U.Outer	Nil	10x10cm	Nil	III b	MRM	IDC.Nos	g.I	6/6+ve				5
26	Lakshmi 928996	45	Menopause	2	Lump	L	Central	Nil	10x8cm	2	III b	Simple.M	IDC	II		free			7
27	Dhanabakiyam 932227	70	Menopause	3	Lump, Pain	L	U.Outer	Nil	3x5cm	1	II b	MRM	IDC.Nos	I	Negative	free			3
28	Selvi	32	Menstruating	2	Lump	L	U.Outer	Nil	12x5cm	2	III b	MRM	IDC.Nos	II	7/7+ve	free			7.4
29	Indrani	60	Menopause	3	Lump	L	U.Outer	Nil	6x4cm	1	III A	MRM	IDC	II	2/4+ve	free			5.2
30	Vasanthi	40	Pre	2	Lump	R	Central	Nil	4x5cm	1	III b	Simple	IDC	II		free			4.8
31	Amsadevi	35	Pre	2	Lump	L	U.Outer	Nil	8x6 cm	2	III b	MRM	IDC.Nos	I	Negative	free			3.6
32	Pushpam	37	Pre	2	Lump	L	U.Outer	Nil	6x5cm	Nil	III b	S.M+A.D	IDC.Nos	I	1/6+ve	free			3.2
33	Manickam 90095	58	Post. Meno	2	Lump	R	U.inner,L.inner	Nil	15x10 cm	2	III b	Simple.M	IDC	I		Involved	L.Node	opp axilla+ve	6
34	Kannambal 905179	55	Menopause	3	Lump	R	U.Outer,L.Outer L.inner	Nil	10x8cm	2	III c	Toilet.M	IDC	III	2 (2/22)+ve	Involved	S.Cnode	Involved	7
35	Lakshmi	52	Menopause	3	Lump, Pain	R	U.Outer	Nil	5x8cm	2	III A	MRM	IDC	I	3/8+ve	free			4.6
36	Selvi	24	Menstruating	2	Lump,discharge	R	U.Outer	Nil	6x4cm	1	II b	simple	IDC/Nos	I		Involved			4.2
37	Vedambal 901993	40	Menopause	2	Lump, Pain	R	U.Outer	Nil	10x8cm	2	III b	simple	IDC	I		positive		opp axilla+ve	5
38	Malarkodi 917872	47	Hyst	3	Lump, Pain	R	U.Outer	Nil	7x7cm	1	III A	MRM	IDC	I	4/6+ve	Involved			5.4
39	Pattu 869995	60	Menopause	3	Lump, Pain	L	U.Outer	Nil	8x5cm	1	III A	MRM	IDC	II	3/6+ve	free			5.6
40	Meenambal 139106	42	Pre	3	Lump, Pain	R	U.Outer	Nil	3x2cm	1	II A	MRM	IDC	II	6/10+ve	free			4.6
41	Selvam	60	Menopause	3	Lump, Pain	R	U.Outer	Nil	6x5cm	3	III A	MRM	IDC	III	2 (2/22)+ve	free			6.2
42	Kunjammal	60	Menopause	3	Lump, Pain	L	U.Outer	Nil	3x2cm	1	II b	MRM	IDC	II	1/6+ve	free			4.6
43	Rajammal	50	Menopause	3	Lump, Pain node	L	All	Nil	15x10 cm	3	III A	MRM	IDC	III	3/10+ve	free			8
44	Vijayalakshmi	55	Menopause	2	Lump, Pain	R	U.Outer	Nil	8x7cm	single	III b	MRM	IDC	II	3/7+ve	free			5.6
45	Vasantha 869990	35	Pre	2	Lump	L	U.Outer	Nil	4x5cm	1	III A	Simple	IDC/Nos	II		free			4.8
46	Papathy	40	Pre	3	Lump	R	All	Nil	8x5cm	2	III A	MRM	IDC	I	Negative	free			3.6
47	Janaki	52	Menopause	3	Lump, ulcer.discharge	L	U.Outer	Nil	10x8cm	3	III b	Toilet.M	IDC	III		Involved			6
48	Violet Mary	42	Pre	3	Lump	L	U.Outer	Nil	6x3cm	1	III A	MRM	IDC	II	3/6+ve	free			5.2
49	Vasantha	45	Pre	2	Lump	R	U.Outer	Nil	5x3 cm	1	III b	MRM	IDC	I	4/6+ve	free			5
50	Sabinabeevi	50	Menopause	2	Lump	R	Central	Nil	3x4cm	Nil	III A	MRM	IDC	I	1/5+ve	free			2.6

51	Adikala Mary	45	Menopause	2	Lump	L	U.Outer	Nil	3x2cm	1	II b	MRM	IDC	II	6/6-ve	free			3.6
52	Mukkayee	51	Menopause	3	Lump	L	U.Outer	Nil	10x8cm	2	II b	Toilet.M	IDC/Nos	II	4/6 +ve	free			7
53	Vallinayakam	45	Pre	3	Lump	R	U.Outer	Nil	5x2cm	Nil	III b	S.M+A.D	IDC/Nos	II	Negative	free			4
54	Baby	27	Menstruating	2	Lump	L	U.Outer	F.adeno ma	5x4cm	Nil	II b	MRM	IDC	II	Negative	free			4
55	Muthu Rakku	46	Pre	3	Lump	R	U.Outer	Nil	5x6cm	Nil	II b	MRM	IDC	II	6/6+ve	free			5.2
56	Manjula	45	Pre	2	Lump	R	U.Outer	Nil	6x3cm	1	III A	MRM	IDC/Nos	II	10/16+ve	free			6.2
57	Chandra	60	Menopause	6	Lump	R	U.Outer	Nil	8x5cm		III b	MRM	IDC	I	Negative	free			3.6
58	Valli	45	Pre	3	Lump	R	I.Lower	Nil	6x5cm	1	III b	S.M+A.D	IDC/Nos	III	4/6+ve		S.C+ve		7.2
59	Jeya Mary	57	Menopause	5	Lump, Pain	L	I.Lower	Nil	8x5cm	1	III A	MRM	IDC	I	3/5+ve	free			4.6
60	Jameela beevi	60	Menopause	Nulli	Lump, Pain,ulcer,disc	R	U.Outer Central	A.Hyper plasia	6x4cm	2	III b	Toilet.M	IDC	III		involved		Lung	6.2
61	Boopathy	35	Menstruating	2	Lump	L	U.Outer	Nil	3x2cm	1	II b	MRM	IDC	II	Negative	Negative			3.6
62	Suseela	43	Pre	2	Lump	L	U.Outer	Nil	4x2cm	1	II b	S.M+A.D	IDC	I	3/3+ve	involved			3.8
63	Dhavamani	35	Menstruating	2	Lump	L	U.Outer	Nil	6x5cm	1	III A	MRM	IDC/Nos	I	1/4+ve	involved			4.2
64	Padmavathy	45	Pre	2	Lump	R	U.Outer	Nil	4x2cm		II A	MRM	IDC/Nos	II	6/12+ve	free			4.8
65	Rajeshwari	50	Pre	2	Lump	R	U.Outer	Nil	5x3 cm	1	II b	MRM	IDC	I	1/6+ve	free			4
66	Kalaiselvi	38	Menstruating	2	Lump, Pain,discharge	L	All	Fibro adenosi	8x9cm	2	III b	S.M+A.D	IDC	II	6/7+ve	involved			6.6
67	Revathy	37	Menstruating	2	Lump	R	U.Outer	Nil	6x4cm	1	III b	MRM	IDC	I	1/6+ve	free			4.2
68	Seeniyammal	50	Menopause	2	Lump	L	U.Outer	Nil	3x2cm	1	II b	MRM	IDC	I	2/6+ve	free			3.6
69	Subu laskshmi	44	Pre	2	Lump	R	U.Outer	fiber adenom	7x6cm		II b	MRM	IDC	II	Negative	free			4.4
70	Jothi	39	Pre	3	Lump	L	U.Outer	Nil	5x3 cm	1	II b	MRM	IDC/Nos	I	3/6+ve	involved			4
71	Lakshmananan	65	Male	3	Lump	R	U.Outer,inner,central		10x8cm	2	III b	MRM	IDC	II	3/6+ve	free			6
72	Lakshmi	45	Menopause	3	Lump, node	L	U.Outer central	Nil	12x8cm	1	III b	Toilet.M	IDC	III		Involved	Local recurenc	spine	7.4
73	Balammal	65	Menopause	3	Lump, Pain	R	L.inner	Nil	8x5cm	3	III a	chemo	IDC	II				Lung	5.6
74	Jeyamari	45	Menopause	Nulli	Lump	L	U.Outer	Fibroad enoma	2x5cm	1	II b	MRM	IDC	I	Negative	Negative			3
75	Kumudham	60	Menopause	6	Lump, Pain disaharge	L	U.Outer	Nil	8x5cm	1	III b	MRM	Colloid		Negative	Negative			2.6
76	Daisy Rani	43	Pre	2	Lump, headache	R	Central	Nil	6x4cm		III b	S.M+A.D	IDC	II	6/7+ve	Involved	Local +	Brain	5.2

77	Alamelu	40	Menopause	4	Lump, discharge	R	U.inner,L.inner	Nil	10x8cm	4	III b	chemo	IDC	I			opp-axilla +		7
78	lakshmi 935750	50	Menopause	2	NoLump, discharge	R	Nolump	Nil	-	1	Cainsitu	MRM	Pagts		1/6 +v	-ve			1
79	Vasantha	50	Menopause	2	Lump	R	U.Outer	Nil	2 X 1		II A	MRM	IDC/Lobularca	II	-Ve	-ve			3.4
80	Hanifa	55	Menopause	1	Lump	L	U.Outer	Nil	3 X 3		II A	S.M.+A.D Chemo	Lobularca		10/10 -ve	-ve			1.6
81	Amsavalli	32	Menstruating	2	Headache, blurring,	L	Central	Nil	8 X 4	3	IV	S.M.done 3 yrs break	IDC	II			Local	Brain Bone	5.6
82	Boopathy	45	Pre	2	Lump, Pain	L	U.Outer	Fibroad enosis	8 X 4	1	III A	Simple.M	IDC	III		Involved	Local Recuren		6.6
83	Tamilarasie	42	Pre	4	Lump	R	U.Outer	Nil	8 X 3	1	III B	Simple.M	IDC	II		Involved			5.6
84	Kamalaa	58	Menopause	2	Lump, Pain	L	U.Outer	Nil	3 X 2	3	II A	MRM	Lobular/ Ductal		6/6 + ve	Free	Local Recuren		5.6
85	Pandi devi	47	Menopause	2	Lump, Pain	R	All	Nil	10 X 7	2	III B	S.M+A.D	IDC	I	1/11 +ve	Free	Bilat S.C/L.C	spine,Liver, Brain	5
86	Fathima	53	Menopause	3	Lump, Pain	R	All	Nil	8 x 5	2	IV	MRM done 21/2 yr	IDc/Nos	III	6/6 +ve	Free		Lung	4.6
87	Kalaiselvi	35	Menstruating	3	Lump	L	U.Outer	fiborad enosis	8 X 4	1	III B	MRM	Atypical Medullar Dc		4/6+ve	Free			4.6
88	Viji	30	Menstruating	3	Lump	R	U.Outer	Fibroad enosis	5 X 4		II B	Simple.M	Dc		-ve	Free			3
89	Nebeesha begum	40	Pre	3	Lump	L	U.Outer	Nil	6 X 5	1	III A	S.M+A.D	Medullar y ca		3/4 +ve	Free			3.2
90	Suseela	40	Menstruating	2	Lump, Pain	R	U.Outer	-	8 X 2	2	II B	S.M+A.D	IDc	II	5/5 +ve	Free			5.6
91	Valarmathy	40	Menstruating	4	Lump, Pain	L	U.Outer	Nil	8 X 7	1	III A	S.M+A.D	Medullar y ca		5/5 +ve	Free			4.6
92	Satynathan	31			Lump, Pain	R	U.Outer	Nil	6 X 5	1	IV	Chemo	M F H				Local Recurrr	Lung	3.2
93	Subbulakshmi	48	Menopause	3	Lump, Pain Dysnea	R	All	Nil	20 X 14	1	III B	Simple.M	IDC	II		Free			8
94	Valarmathy	43	Pre	3	Lump, discharge	R	U.Outer inner ce	-	12 X 8	3	III B	S.M+A.D	Lobular		-ve	-ve			3.4
95	Ayeshammal	55	Menopause	3	Lump, Pain dyspnea	R	U.Outer	Nil	6 X 5	1	IV	Chemo	IDc	I				Lung	3.2

Pre - Pre Menstrual

Hyst - Hystrectomy

U.O - Upper Outer

MRM - Modified Radical Mastectomy

Simple.M - Simple Mastectomy

S.M + A.D - Simple Mastectomy + Axillary Dissection

LR - Local Recurrence

IDC - Intraductal Cavinoma

IDC/NOS - Intraductal Cavinoma - Not Otherwise Specified

S.C Node - Supraclavicular node

NPI - Nottingham Prognostic Index

Patients

76, 81,92,95-presented with Metastasis

72,85-Developed spine Metastasis

85-Developed Liver, Brain Metastasis

5,60,73,86- Developed Lung Metastasis